











UNITED STATES DEPARTMENT OF THE INTERIOR

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BUREAU OF RECLAMATION  
PROJECT FEASIBILITIES  
AND AUTHORIZATIONS

A COMPILATION OF FINDINGS OF  
FEASIBILITIES AND AUTHORIZATIONS  
FOR BUREAU OF RECLAMATION  
PROJECTS OF THE DEPARTMENT  
OF THE INTERIOR

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# FOREWORD

## FINDINGS OF FEASIBILITY AND PROJECT AUTHORIZATIONS

The criterion for authorization of Federal reclamation projects since their inception has been whether they are feasible. At the inauguration of the Federal reclamation program, Congress authorized the Secretary of the Interior to proceed with the construction of an irrigation project if the Secretary determined that the project was practicable and that the estimated cost of construction could be returned to the United States by the water users in not exceeding 10 annual installments.

Under present law (1948) a finding of feasibility approved by the Secretary and sent to the President and the Congress is sufficient to authorize the construction of a reclamation project if the Secretary finds that the proposed project has engineering feasibility and if the estimated cost, less allocations to flood control, navigation, and fish and wildlife, will probably be returned to the United States. Because of this feature, the finding of feasibility procedure is sometimes referred to as the "automatic" authorization.

The original Reclamation Act of June 17, 1902 (32 Stat. 388), vested in the Secretary authority to construct feasible projects, section 2 of the act providing

SEC. 2. That the Secretary of the Interior is hereby authorized and directed to make examinations and surveys for, and to locate and construct, as herein provided, irrigation works for the storage, diversion, and development of waters, including artesian wells, and to report to Congress at the beginning of each regular session as to the results of such examinations and surveys, giving estimates of cost of all contemplated works, the quantity and location of the lands which can be irrigated therefrom, and all facts relative to the practicability of each irrigation project; also the cost of works in process of construction as well as of those which have been completed.

Section 3 of the act made it discretionary with the Secretary as to whether a project should be undertaken or not, on the basis of whether it was practicable and advisable, the first proviso of this section reading

SEC. 3. \* \* \* Provided, That all lands entered and entries made under the homestead laws within areas so withdrawn during such withdrawal shall be subject to all the provisions, limitations, charges, terms and conditions of this act; that said surveys shall be prosecuted diligently to completion, and upon the completion thereof, and of the necessary maps, plans, and esti-

mates of cost, the Secretary of the Interior shall determine whether or not said project is practicable and advisable, and if determined to be impracticable or unadvisable he shall thereupon restore said lands to entry;

Section 4 of the act established the basic rule for feasibility by providing that the Secretary must fix the size of farm to support a family and secure the return of the cost of the construction of the project within ten years, section 4 reading in part, as follows:

SEC. 4. That upon the determination by the Secretary of the Interior that any irrigation project is practicable, he may cause to be let contracts for the construction of the same, in such portions or sections as it may be practicable to construct and complete as parts of the whole project, providing the necessary funds for such portions or sections are available in the reclamation fund, and thereupon he shall give public notice of the lands irrigable under such project, and limit of area per entry, which limit shall represent the acreage which, in the opinion of the Secretary, may be reasonably required for the support of a family upon the lands in question; also of the charges which shall be made per acre upon the said entries, and upon lands in private ownership which may be irrigated by the waters of the said irrigation project, and the number of annual installments, not exceeding ten, in which such charges shall be paid and the time when such payments shall commence. The said charges shall be determined with a view of returning to the reclamation fund the estimated cost of construction of the project, and shall be apportioned equitably; \* \* \*

Thus, we find that under the original act the Secretary had authority to construct those projects which he considered practicable and advisable, the test of financial practicability being limited to whether, in his opinion, the cost of the project could be returned within a ten-year period.

In 1910, by the act of June 25 (36 Stat. 835) Congress modified the finding of feasibility procedure to require the President to approve the authorization for a project on the recommendation of the Secretary of the Interior, section 4 of the act reading:

SEC. 4. That all money placed to the credit of the reclamation fund in pursuance of this act shall be devoted exclusively to the completion of work on reclamation projects heretofore begun as hereinbefore provided, and the same shall be included with all other expenses in future estimates of construction, operation, or maintenance, and hereafter no irrigation project contemplated by said act of June seventeenth, nineteen hundred and two, shall be begun unless and until the same shall have been recommended by the Secretary of the Interior and approved by the direct order of the President of the United States.

This act also contained a special provision requiring all projects then under construction to be examined and reported upon by the Corps of Engineers of the United States Army and the President to reapprove each project as feasible and practicable. Actually, the original authority of the Secretary to find a project feasible was rescinded by the act of 1910 and the President was required to approve all undertakings.

The act of February 21, 1911 (36 Stat. 925), commonly known as the Warren Act, authorized the Secretary to dispose of water in excess of requirements of lands to be irrigated under any project to existing irrigation enterprises. In contracting for the



disposition of such excess waters the Secretary is required to fix the charges, taking into consideration the cost of construction and maintenance of the Government system, and to make the charges just and equitable as to the water users within the Government project. In other words, the Secretary must not discriminate in favor of private lands receiving a supplemental supply under the Warren Act as against the lands receiving a full supply under the government project.

In 1914 the procedure for finding a project feasible was further modified by providing for return of the cost of construction of projects by irrigation water users in 16 installments paid over 20 years. The act of August 13, 1914 (38 Stat. 686), states:

SEC. 1. \* \* \*, any person who hereafter makes entry thereunder shall at the time of making water-right application or entry, as the case may be, pay into the reclamation fund five per centum of the construction charge fixed for his land as an initial installment, and shall pay the balance of said charge in fifteen annual installments, the first five of which shall each be five per centum of the construction charge and the remainder shall each be seven per centum until the whole amount shall have been paid. The first of the annual installments shall become due and payable on December first of the fifth calendar year after the initial installment;

Until 1922 the Government looked to the individual water user on reclamation projects to return the costs thereof. By the act of May 15, 1922 (42 Stat. 541), the Congress authorized the Secretary of the Interior to contract with irrigation districts in place of the individual water user and to recover the annual charges from the district under a joint liability contract. This act, however, did not modify the rules of feasibility, including the repayment limit which remained at 20 years.

It was becoming increasingly evident, however, that the relatively short period of years for return of the investment was limiting the class of projects that could be undertaken. Many worth-while projects could be constructed if a longer repayment period were authorized. A committee of special advisers appointed by the Secretary of the Interior, known as the Fact Finders, submitted a report in 1924 (Senate Document 92, 68th Congress, 1st Session) which became the basis for an act of Congress modifying the feasibility requirements. The Fact Finders Act was attached to and became a part of the Second Deficiency Act of 1924 (act of December 5, 1924, 43 Stat. 672).

The Fact Finders Act required that the Commissioner of Reclamation join with the Secretary of the Interior in recommending projects to the President for approval. In submitting his recommendations to the President the Secretary was required to include in his report information on water supply, engineering features, cost of construction, land prices, probable cost of development, and find that the cost could be returned to the United States. Instead of the 20-year period for repayment as provided by the Extension Act of 1914, the 1924 Act contained the entirely new idea that construction charges should be paid in annual installments based on the productive power of the land. The formula included in the statute computed the annual construction charge

at five percent of the average gross annual acre income for the ten calendar years preceding the year of payment, or for all years of record if less than ten years' records were available. There was no limit to the number of years that the formula could operate to return the project cost and some projects found feasible under this act had a construction repayment period estimated at exceeding 100 years.

The applicable provisions of this act are:

Provided, That no part of the sums herein appropriated shall be used for the commencement of construction work on any reclamation project which has not been recommended by the Commissioner of Reclamation and the Secretary of the Interior and approved by the President as to its agricultural and engineering feasibility and the reasonableness of its estimated construction cost.

SUBSEC. B. That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

SUBSEC. F. That hereafter all project construction charges shall be made payable in annual installments based on the productive power of the land as provided in this subsection. The installment of the construction charge per irrigable acre payable each year shall be 5 per centum of the average gross annual acre income for the ten calendar years first preceding, or for all years of record if fewer than ten years are available, of the area in cultivation in the division or subdivision thereof of the project in which the land is located, as found by the Secretary annually. The decision of the Secretary as to the amount of any such installment shall be conclusive. These annual payments shall continue until the total construction charge against each unit is paid. The Secretary is authorized upon request to amend any existing contract for a project water right so that it will provide for payment of the construction charge thereunder in accordance with the provisions of this subsection or for the deferment of such construction charges for a period of three years from the approval of this section, or both.

In the act of December 5, 1924, Congress authorized adjustments to be made in the construction charges of various authorized reclamation projects. In the Omnibus Adjustment Act of May 25, 1926 (44 Stat. 636), the Congress approved the recommendation of the Department of the Interior for various adjustments in project costs. The Adjustment Act contained other provisions affecting feasibility of future projects. It repealed the crop repayment formula authorized by the Fact Finders Act and substituted instead a proviso that all future contracts must provide for repayment of the cost of construction within such term of years as the Secretary of the Interior might find necessary, but in no event more than forty years. The 1926 Act did not annul or cancel the contracts executed under the 1924 Act but prohibited the execution of any further contracts of this type.

The applicable feasibility provisions of the 1926 Act are:

SEC. 46. \* \* \*. No water shall be delivered upon the completion of any new project or new division of a project until a contract or contracts in form

approved by the Secretary of the Interior shall have been made with an irrigation district or irrigation districts organized under State law providing for payment by the district or districts of the cost of constructing, operating, and maintaining the works during the time they are in control of the United States, such cost of constructing to be repaid within such terms of years as the Secretary may find to be necessary, in any event not more than forty years from the date of public notice hereinafter referred to, and the execution of said contract or contracts shall have been confirmed by a decree of a court of competent jurisdiction.

A number of repayment contracts were executed under the provisions of the 1926 Act, most of them, however, being on projects authorized or found feasible under earlier acts.

No further action was taken by Congress to modify the feasibility requirements of Reclamation law until late in the 1930 decade when it again became evident that the rigid forty-year limitation in the 1926 Act was limiting the initiation of construction of new projects and also did not meet the repayment requirements of projects undertaken under authority of "relief" or PWA projects.

The act of August 4, 1939 (53 Stat. 1187), is the next milestone on the reclamation road of feasibility. An attempt is made in this act to meet the difficulties encountered by farmers in paying their construction charges during a depression period under the fixed schedules established by the 1926 act. The 1939 Act in section 4 provides for a variation in construction charges again in accordance with crop values, under a formula similar to that of the 1924 Act, but limiting the period of repayment to forty years. Section 7 of the act further authorizes the Secretary to negotiate for repayment contracts in excess of forty years but such repayment contracts are limited to existing projects or projects under construction, and in addition must be ratified by Congress.

The 1939 Act modified the rules of feasibility. For the first time it brought into Reclamation law the concept that benefits from reclamation projects were more than local in scope, and benefits that were national in character should not be a burden on the beneficiaries of reclamation projects. In other words, certain values assigned to national benefits could be deducted from the cost of a project and only the balance need be recovered through payments from water users and from power revenues. Section 9 (b) of the 1939 Act provides that allocations of cost to flood control and navigation would be nonreimbursible.

An innovation of the 1939 Act for repayment of the cost of irrigation works is found in Section 9 (e) which permits of an indefinite period for return of irrigation costs by water users although contracts may not be executed for more than forty years at any one time. Section 9 (e) contracts are applicable only to works connected with water supply and do not apply to distribution systems. The Secretary can re-execute such contracts at the end of a forty-year period as often as he may wish. All contracts for irrigation distribution systems executed in accordance with the 1939 act are, however, limited to forty years under provisions of Section 9 (d) of the act. In like manner, contracts for the sale of power and municipal water are limited to forty years with

the privilege of the Secretary to renew these contracts from time to time.

An important modification of the 1939 Act was the return to the Secretary from the President of the power to approve a finding of feasibility and thereby authorize construction of a project. The finding of feasibility is required, however, to be submitted by the Secretary to the President and the Congress and it does not become fully effective until such transmittal has been accomplished. As a matter of custom, the finding of feasibility is first submitted to the President and a copy of his acknowledgement which contains an expression of his views, or of the review of the Bureau of the Budget, is attached to the transmittal of the finding to the Congress.

The portions of the act of August 4, 1939, relating to project feasibility are quoted below:

SEC. 7 (a). The Secretary is hereby authorized and directed to investigate the repayment problems of any existing project contract unit in connection with which, in his judgment, a contract under section 3 or 4 of this Act would not be practicable nor provide an economically sound adjustment, and to negotiate a contract which, in his judgment, both would provide fair and equitable treatment of the repayment problems involved and would be in keeping with the general purpose of this Act.

SEC. 7 (b). For any project, division of a project, development unit of a project, or supplemental works on a project, now under construction or for which appropriations have been made, and in connection with which a repayment contract has not been executed, allocations of costs may be made in accordance with the provisions of section 9 of this Act and a repayment contract may be negotiated, in the discretion of the Secretary, (1) pursuant to the authority of subsection (a) of this section or (2) in accordance, as near as may be, with the provisions in subsection 9 (d) or 9 (e) of this Act. \* \* \*

SEC. 7 (c). The Secretary from time to time shall report to the Congress on any proposed contracts negotiated pursuant to the authority of subsection (a) or (b) (1) of this section, and he may execute any such contract on behalf of the United States only after approval thereof has been given by Act of Congress.

SEC. 9 (a). No expenditures for the construction of any new project, new division of a project, or new supplemental works on a project shall be made, nor shall estimates be submitted therefor, by the Secretary until after he has made an investigation thereof and has submitted to the President and to the Congress his report and findings on—

- (1) The engineering feasibility of the proposed construction;
- (2) The estimated cost of the proposed construction;
- (3) The part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users;
- (4) The part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues;
- (5) The part of the estimated cost which can properly be allocated to municipal water supply or other miscellaneous purposes and probably be returned to the United States.

If the proposed construction is found by the Secretary to have engineering feasibility and if the repayable and returnable allocations to irrigation, power, and municipal water supply or other miscellaneous purposes found by the Secretary to be proper, together with any allocation to flood control or navigation made under subsection (b) of this section, equal the total estimated cost of construction as determined by the Secretary, then the new

project, new division of a project, or supplemental works on a project, covered by his findings, shall be deemed authorized and may be undertaken by the Secretary. If all such allocations do not equal said total estimated cost, then said new project, new division, or new supplemental works may be undertaken by the Secretary only after provision therefor has been made by Act of Congress enacted after the Secretary has submitted to the President and the Congress the report and findings involved.

SEC. 9 (b). In connection with any new project, new division of a project, or supplemental works on a project there may be allocated to flood control or navigation the part of said total estimated cost which the Secretary may find to be proper. Items for any such allocations made in connection with projects which may be undertaken pursuant to subsection (a) of this section shall be included in the estimates of appropriations submitted by the Secretary for said projects, and funds for such portions of the projects shall not become available except as directly appropriated or allotted to the Department of the Interior. In connection with the making of such an allocation, the Secretary shall consult with the Chief of Engineers and the Secretary of War, and may perform any of the necessary investigations or studies under a cooperative agreement with the Secretary of War. In the event of such an allocation the Secretary of the Interior shall operate the project for purposes of flood control or navigation, to the extent justified by said allocation therefor.

SEC. 9 (c). The Secretary is authorized to enter into contracts to furnish water for municipal water supply or miscellaneous purposes: Provided, That any such contract either (1) shall require repayment to the United States, over a period of not to exceed forty years from the year in which water is first delivered for the use of the contracting party, with interest not exceeding the rate of  $3\frac{1}{2}$  per centum per annum if the Secretary determines an interest charge to be proper, of an appropriate share as determined by the Secretary of that part of the construction costs allocated by him to municipal water supply or other miscellaneous purposes; or (2) shall be for such periods, not to exceed forty years, and at such rates as in the Secretary's judgment will produce revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost and an appropriate share of such fixed charges as the Secretary deems proper, and shall require the payment of said rates each year in advance of delivery of water for said year. Any sale of electric power or lease of power privileges, made by the Secretary in connection with the operation of any project or division of a project, shall be for such periods, not to exceed forty years, and at such rates as in his judgment will produce power revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appropriate share of the construction investment at not less than 3 per centum per annum, and such other fixed charges as the Secretary deems proper: \* \* \*

SEC. 9 (d) (2). That the part of the construction costs allocated by the Secretary to irrigation shall be included in a general repayment obligation of the organization; and that the organization may vary its distribution of construction charges in a manner that takes into account the productivity of the various classes of lands and the benefits accruing to the lands by reason of the construction: Provided, that no distribution of construction charges over the lands included in the organization shall in any manner be deemed to relieve the organization or any party or any land therein of the organization's general obligation to the United States.

SEC. 9 (d) (3). That the general repayment obligation of the organization shall be spread in annual installments, of the number and amounts fixed by the Secretary, over a period not exceeding forty years, exclusive of any development period fixed under subsection (d) (1) of this section, for any project contract unit, or for any irrigation block, if the project contract unit be divided into two or more irrigation blocks.

SEC. 9 (e). In lieu of entering into a repayment contract pursuant to the provisions of subsection (d) of this section to cover that part of the cost of the construction of works connected with water supply and allocated to irrigation, the Secretary, in his discretion, may enter into either short-or-long-term contracts to furnish water for irrigation purposes. Each such contract shall be for such period, not to exceed forty years, and at such rates as in the Secretary's judgment will produce revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost and an appropriate share of such fixed charges as the Secretary deems proper, due consideration being given to that part of the cost of construction of works connected with water supply and allocated to irrigation; and shall require payment of said rates each year in advance of delivery of water for said year. In the event such contracts are made for furnishing water for irrigation purposes, the costs of any irrigation water distribution works constructed by the United States in connection with the new project, new division of a project, or supplemental works on a project, shall be covered by a repayment contract entered into pursuant to said subsection (d).

Reclamation law was further modified in 1946 by passage of the act of August 14, wherein provision was made by Congress that costs properly allocable to fish and wildlife benefits need not be repaid by the project beneficiaries. The applicable part of this act reads as follows:

SEC. 1. That the Act of March 10, 1934 (48 Stat. 401), is hereby amended to read as follows:

In order to promote effectual planning, development, maintenance, and coordination of wildlife conservation and rehabilitation in the United States, its Territories and possessions, the Secretary of the Interior, through the Fish and Wildlife Service, is authorized (a) to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, in providing public shooting areas, and in carrying out other measures necessary to effectuate the purposes of this Act; and (b) to make surveys and investigations of the wildlife of the public domain, including lands and waters or interests therein acquired or controlled by any agency of the United States (16 U.S.C.A. 661).

SEC. 2. Whenever the waters of any stream or other body of water are authorized to be impounded, diverted, or otherwise controlled for any purpose whatever by any department or agency of the United States, or by any public or private agency under Federal permit, such department or agency of the United States first shall consult with the Fish and Wildlife Service and the head of the agency exercising administration over the wildlife resources of the State wherein the impoundment, diversion, or other control facility is to be constructed with a view to preventing loss of and damage to wildlife resources, and the reports and recommendations of the Secretary of the Interior and of the head of the agency exercising administration over the wildlife resources of the State, based on surveys and investigations conducted by the Fish and Wildlife Service and by the said head of the agency exercising administration over the wildlife resources of the State, for the purpose of determining the possible damage to wildlife resources and of the means and measures that should be adopted to prevent loss of and damage to wildlife resources, shall be made an integral part of any report submitted by any agency of the Federal Government responsible for engineering surveys and construction of such project.

The cost of planning for and the construction or installation and maintenance of any such means and measures shall be included in and shall constitute an integral part of the costs of such projects: Provided, That, in the case of projects hereafter authorized to be constructed, operated, and maintained in accordance with the Federal reclamation laws (Act of June 17,

1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), the Secretary of the Interior, shall, in addition to allocations to be made under section 9 of the Reclamation Project Act of 1939 (53 Stat. 1187), make findings on the part of the estimated cost of the project which can properly be allocated to the preservation and propagation of fish and wildlife, and costs allocated pursuant to such findings shall not be reimbursable. In the case of construction by a Federal agency, that agency is authorized to transfer, out of appropriations or other funds made available for surveying, engineering, or construction to the Fish and Wildlife Service, such funds as may be necessary to conduct the investigations required by this section to be made by it (16 U.S.C.A. 662).

SEC. 3. Whenever the waters of any stream or other body of water are impounded, diverted, or otherwise controlled for any purpose whatever by any department or agency of the United States, adequate provision consistent with the primary purposes of such impoundment, diversion, or other control shall be made for the use thereof, together with any areas of land, or interest therein, acquired or administered in connection therewith, for the conservation, maintenance, and management, of wildlife, resources thereof, and its habitat thereon. In accordance with general plans, covering the use of such waters and other interests for these purposes, approved jointly by the head of the department or agency exercising primary administration thereof, the Secretary of the Interior, and the head of the agency exercising administration over the wildlife resources of the State wherein the waters and areas lie, such waters and other interests shall be made available without cost for administration (a) by such State agency, if the management thereof for the conservation of wildlife relates to other than migratory birds; (b) by the Secretary of the Interior, if the waters and other interests have particular value in carrying out the national migratory bird management program (16 U. S. C. A. 663).

During the period 1933 to 1940 Congress appropriated large sums undertaking public works throughout the United States. These sums were appropriated to the Federal Emergency Relief Administration, Public Works Administration and the Works Progress Administration. The acts of Congress appropriating these funds in general provided that the works were to be constructed in accordance with existing law controlling their authorization, and under the direction of the agency responsible for the administration of the existing laws. Reclamation projects were among the public works initiated under the authority vested in the President for the expenditure of relief funds. Such initial authorizations were later ratified by findings of feasibility issued under Reclamation law, or by a specific authorization by Congress. In general, these relief acts in no way modified the feasibility requirements of Reclamation law. If anything, they established a further criterion that the particular project should, besides satisfying reclamation law, provide a basis for work relief. In return the project would be entitled to financing on the basis of a grant or loan from a relief appropriation. Reclamation projects initiated under the relief acts were later completed by regular reclamation appropriations made on a fully reimbursable basis.

In addition to authorization of reclamation projects by finding of feasibility, many reclamation projects have been authorized by special acts of Congress. These acts of Congress are too numerous to quote in detail here, but generally they anchor to the requirement of basic Reclamation law requiring the cost to be

returned by the beneficiaries. The special features of most of these acts have been directed to provisions for repayment that differ somewhat from the standard requirements of reclamation law. These differences usually are in the form of an extension of the repayment period for that portion of the project to be repaid by irrigation water users.

The Boulder Canyon project authorized by the act of December 21, 1928 (45 Stat. 1057), for example, requires payment in full of the entire cost of construction within fifty years, except for a \$25,000,000 allocation to flood control which is, however, to be repaid after the end of the fifty-year repayment for all other project costs.

The Fort Peck Project Act which authorizes the Secretary of the Interior to dispose of power from the Corps of Engineers' Fort Peck project, requires that electric power rates be set to recover the cost of producing and transmitting electric energy, including amortization of the capital investment, over a reasonable period of years.

Another outgrowth of the depression years was the effort of Congress to provide through Reclamation for distressed conditions in the Western Plains and Mountain States affected by the extreme droughts of the mid 1930's. Congress's efforts here were directed to providing for small irrigation projects, usually with only a few thousand acres or less, as contrasted with large developments authorized under the Reclamation Act. In 1939 Congress passed the Water Conservation and Utility Project Act of August 11, 1939 (53 Stat. 1418). This act authorized the construction of small projects on the basis of joint findings of feasibility by the Secretary of Agriculture and the Secretary of the Interior and approved by the President. The act provided originally for reimbursable appropriations combined with non-reimbursable participation by the Works Progress Administration and the Civilian Conservation Corps, thereby making projects with a high total cost per acre feasible, provided sufficient relief labor could be made available to hold the reimbursable portion to a reasonable amount. This act ordinarily would have expired with termination of the WPA and CCC at the beginning of World War II. Congress by the act of July 16, 1943, modified the original law to permit the completion of Water Conservation and Utility projects which could show a benefit to the war.



# ALL-AMERICAN CANAL PROJECT<sup>1</sup>

## REPORT OF COLORADO RIVER BOARD

[Extracts from] Report of Colorado River Board on the Boulder Canyon Project to the Secretary of the Interior, Denver, Colorado, November 24, 1928.

The Board of Engineers and Geologists appointed in accordance with Resolution No. 65, Seventieth Congress, approved May 29, 1928, has the honor to submit the following report as to the matters enumerated in said Resolution, that were to be reported on prior to December 1st, 1928.

The duties of the Board, insofar as this report is concerned, are—

To examine the proposed site of the dam to be constructed under the provisions of H. R. 5773, Seventieth Congress, first session, and review the plans and estimates made therefor, and to advise him (the Secretary of the Interior) prior to December 1, 1928, as to matters affecting the safety, the economic and engineering feasibility, and adequacy of the proposed structure and incidental works.

The structures proposed in H. R. 5773, Seventieth Congress, are:

A dam and incidental works in the main stream of the Colorado River at Black Canyon or Boulder Canyon adequate to create a storage reservoir of a capacity of not less than twenty million acre-feet of water and a main canal and appurtenant structures located entirely within the United States connecting the Laguna Dam with the Imperial and Coachella Valleys in California;

The "incidental works" at the dam are construed to be a power-house with its equipment of turbines, generators and all appurtenant appliances needed in the generation and control of electric energy.

The "appurtenant structures" for the main canal are construed to be a higher dam at Laguna, an enlargement of the headworks and desilting basin, together with the necessary flumes, bridges, culverts and other incidental structures along the line of the canal.

## THE COLORADO RIVER

The Colorado River, one of the large rivers of the country, drains an area of about 244,000 square miles and has a total length from source to mouth of about 1,700 miles.

<sup>1</sup> The *All-American Canal Project* was declared feasible from an engineering standpoint by the Colorado River Board in its report of November 24, 1928, wherein the Board confirmed the findings of the Bureau of Reclamation, concurred in the selection of the dam site and approved the plans Authorized by the Boulder Canyon Project Act, December 21, 1928.

Its total fall is over 7,500 feet, or an average fall of about 4.5 feet per mile. The average rainfall on the drainage area is about 10 inches, over thousands of square miles less than 5 inches, and the average annual run-off is less than 1½ inches. Its main flow is derived from the melting of snow on the mountains of the upper basin. The principal characteristics of its flow are low waters during the autumn and winter months, with a normal flood from the melting snows, usually beginning late in April, reaching its maximum in June, and ending by the middle of August. This flow is modified and intensified by torrential floods of short duration, which come in general from its southern tributaries, and may occur during almost any month of the spring, fall or winter. Its flood flows afford by far the greater quantity of water produced by the stream, and must be conserved and impounded in order to be successfully utilized for water supply and power production. Floods of 200,000 second-feet are not unusual, and much larger ones have occurred.

### ENGINEERING FEASIBILITY

The engineering feasibility of the proposed dam across the main stream of the Colorado river, at Black Canyon or Boulder Canyon, is basic.

#### Selection of Site

The Board examined both sites in question, studied the available data concerning them, the geological formations surrounding them and the seismic history of the region. Conclusions concerning these damsites are embodied in the following statement:

Boulder Canyon Site \* \* \*

Black Canyon Site \* \* \*

Comparison of the Two Sites \* \* \*

There is no doubt whatever but that the rock formations of this site are competent to carry safely the heavy load and abutment thrusts contemplated. It is well adapted to making a tight seal and for opposing water seepage and circulation under and around the ends of the dam. It insures successful tunneling, and, so far as the rock is concerned, the general safety and permanence of the proposed structures.

The Board is of the opinion that the Black Canyon site is suitable for the proposed dam, and is preferable to that of the Boulder Canyon.

\* \* \* \* \*

#### The Main Canal and Appurtenant Structures

The bill provides for the construction of a canal connecting the Laguna Dam with the Imperial and Coachella Valleys, whereas the original estimate of \$31,000,000 applies only to a canal reaching the distribution system of the Imperial Valley. The

revised estimate will include the cost of constructing that portion of the canal leading to the Coachella Valley.

The Imperial Valley receives its water for irrigation and domestic purposes from the Colorado River, by means of the Imperial Canal. The water is diverted from the River at Rockwood Gates, about one mile north of the International Boundary, and is thence carried in a canal through Mexican territory and back into the United States to the Imperial Valley, thus avoiding the high mesa and sand-hill country north of the International Boundary. In most of its 50-mile course in Mexico this canal follows the Alamo River channel which formerly led into the Salton Sea.

The main canal is to be entirely within the United States. Under the proposed plan, the water is to be diverted from the river at Laguna Dam, the present intake of the canal for the Yuma Irrigation Project, 23 miles by river above the intake of the Imperial Canal. This will allow water to be taken from the river at the higher elevation necessary to permit the canal to serve its purposes.

From the intake the proposed line of the main canal leads southwest to a point near the river just north of the International Boundary, thence west approximately parallel to that line, to a point about 10 miles west of Calexico, a total length of 75 miles, making connections with the Imperial Valley System. At a point on the east mesa a canal branches off and leads to the Coachella Valley.

Between the Colorado River and Imperial Valley the canal location, for a length of 10 miles, crosses a region of sand dunes, some of which reach a height of about 150 feet above the canal bed. For much of this distance the canal cut will be over 50 feet deep. The grade of this section of the canal is such that the water surface will be below the mesa level, and hence below the bases of the sand dunes. Winds above a velocity of 10 miles an hour cause a movement of the surface sand, which increases with the velocity of the wind, and special provision should be made to prevent undue silting of the canal by the "blow sand," as well as for the removal of the sand that will drift into the canal prism. In order to observe conditions the Board visited the sand dune belt several times, once during a sandstorm. Although it is clear that difficulties are presented by the drifting sand, it is the opinion of the Board that it is feasible to construct, maintain and successfully operate the canal. The overcoming of these difficulties will affect the cost, which has been allowed for in the estimates.

The Board believes that the canal should be lined with concrete through the sand dune region and should be given a slope sufficient to carry the in-blown sand to a suitable place for deposit and removal.

\* \* \* \* \*

#### ADEQUACY OF PROPOSED STRUCTURES

A dam of 550 feet above low water, across the Colorado River at Black Canyon, impounding 26,000,000 acre feet of water, will be

adequate, in the opinion of the Board, to so regulate the flow of the lower Colorado as to control ordinary floods; to improve the present navigation possibilities; and to store and deliver the available water for reclamation of public lands and for other beneficial uses within the United States.

\* \* \* \* \*

The adequacy of the proposed hydro-electric plant to generate sufficient power to make the project authorized a self-supporting and financially solvent undertaking, is treated in the section on Economic Feasibility.

### THE WATER SUPPLY OF THE COLORADO RIVER

The flow of the Colorado River is one of the fundamental factors on which the success of this project depends. On the stream flow depends the amount of land that can be irrigated and the amount of power that can be generated. The information on which this flow has been estimated is inadequate to furnish an accurate or sound estimate on which to base an important project without using factors of safety sufficiently great to make such estimates conservative and safe. Since the water supply is such a vital element in the problem, the Board has inquired into the subject as thoroughly as the limited time would permit.

\* \* \* \* \*

### ECONOMIC FEASIBILITY

The time available for the investigation in preparation of this report has not been sufficient to permit the Board to go into all phases of this subject in the detail necessary to fix its findings with the degree of exactness which might otherwise be practicable.

The Board believes, however, that it has been able to review the available data with sufficient thoroughness to warrant the conclusions expressed in this report.

\* \* \* \* \*

Based on the foregoing and the shortage of power which will occur at low flow, the Board is of the opinion that if the Boulder Canyon Project is completed and put in operation, carrying as it does the costs of flood protection works and the All American Canal, it will be impossible to meet operation, maintenance, interest and a sufficient sinking fund to retire the cost of the project within a 50-year period.

4. It is obvious that the power which can be generated from Boulder Dam is a valuable resource. If the income from storage can be reasonably increased and the capital investment reduced by the cost of the All American Canal together with a reduction for all or a part of the cost properly chargeable to flood protec-

tion, it would be possible to amortise the remaining cost with the income from power.

(Signed) COLORADO RIVER BOARD,  
Maj. Gen. WILLIAM L. SIBERT,  
*Chairman.*

CHARLES P. BERKEY,  
DANIEL W. MEAD,  
WARREN J. MEAD,  
ROBERT RIDGWAY.

# ANGOSTURA UNIT

OFFICE OF THE SECRETARY,  
*Washington, February 19, 1941.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Angostura irrigation project in Custer and Fall River counties, South Dakota; and pursuant to the authority of the act of August 11, 1939 (53 Stat. 1418), as amended by the act approved October 14, 1940 (Public No. 848, 76th Congress, 3d Session), I submit this report on the proposed project, and request your approval of the findings and certifications contained herein.

## PROJECT PURPOSE AND PLAN

The purpose of the project is to furnish a supply of irrigation water to lands which are now farmed unsuccessfully, if at all, under dry farming practices. The principal features as now proposed, subject to such changes as final surveys may indicate, are a storage reservoir on the Cheyenne River, about 6 miles southeast of the city of Hot Springs, South Dakota; a distribution system of canals and laterals leading from the reservoir to the project lands; and a drainage system which will be built when the seepage conditions make it necessary. The estimated height of the dam, which will create the reservoir, is 132 feet above foundation, and its crest length approximately 600 feet, exclusive of spillway and dike. An unusually large spillway capacity is needed to bypass flood flows around the dam, and it is planned to provide this by a permanent spillway equipped with two radial gates and an emergency spillway consisting of an uncontrolled concrete crest 1030 feet in length. The estimated capacity of the reservoir is 120,000 acre-feet, of which 40,000 acre-feet will be available for irrigation use. The remaining 80,000 acre-feet will be used largely for silt storage and may possess considerable benefits for recreation. The estimated length of the main canal is

30 miles. One of its major structures will be an inverted siphon across the Cheyenne River.

The project lands, comprising approximately 16,210 acres, are located in the Cheyenne River Valley easterly of Hot Springs. The area was settled in the early nineties in 160-acre homesteads. Fair crops and small grains have been raised under favorable conditions, but crop failures have occurred in nearly every year since 1931 due to subnormal precipitation. Many of the original homesteaders have been forced to sell their properties, and as a result the land holdings in single ownership are now quite large.

The project will contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing farms for farm peoples who have been forced to leave other submarginal farm areas, and by stabilizing the farm economy of the farm areas comprising the unit. The project will also contribute toward the solution of the unemployment problem by providing considerable employment in its construction stages, and should contribute to the permanent solution of this problem in the vicinity of the unit by the stabilization of its agricultural economy.

#### PARTICIPITION OF FEDERAL AGENCIES

It is proposed that the Bureau of Reclamation will construct the dam, reservoir and appurtenant works, the distribution system and the drainage features. The present plan, subject to change, is that the Bureau also will operate the irrigation works after they are built, and will negotiate contracts with the water users for the repayment of construction charges.

The Secretary of Agriculture has been consulted regarding participation in the proposed project by the Department of Agriculture, and a report to you by the Secretary of Agriculture on the participation of that Department is transmitted herewith. As shown in that report, the Department of Agriculture proposes to participate in the project development, pursuant to a cooperative agreement with the Secretary of the Interior: (1) by arranging for the settlement of the project on a sound agricultural basis, and in so far as practicable by locating on the project persons in need; (2) by extending guidance and advice to settlers on the project in matters of farm practice, soil conservation, and efficient land use; (3) by acquiring agricultural lands within the boundaries of the project; and (4) by arranging for the improvement of lands within the project boundaries, including clearing, leveling, and preparing the lands for distribution of irrigation water. A copy of the cooperative agreement is attached.

For the construction and development of the project, the Work Projects Administration and the Civilian Conservation Corps are expected to provide most of the labor, and a small amount of materials, supplies and equipment. A letter from the Work Projects Administration is enclosed. It will be noted therefrom that approximately 250 certified workers can be made available during the fiscal year for the execution of the project.

## CONTRIBUTIONS BY NON-FEDERAL AGENCIES

The Board of County Commissioners of Fall River County has indicated its willingness to provide the major part of the rights of way and to make the road and highway changes required by the construction of the irrigation works. These contributions are necessary and in my judgment are acceptable under Section 2 of the act of October 14, 1940.

## ESTIMATED COST AND FINANCING PROCEDURE

The total estimated cost of the project, exclusive of non-Federal contributions, is \$3,938,000, of which \$3,300,000 is planned to be used for the construction of works by the Bureau of Reclamation, and \$638,000 for land acquisition and development by the Department of Agriculture. Funds amounting to \$1,450,000 for construction and \$448,000 for land acquisition and development, totalling \$1,898,000, are expected to be allotted from appropriations made under the authority of the act of August 11, 1939, and its amendments. The remaining \$2,040,000 of the total estimated cost is the amount of Federal funds which is expected to be expended by the Work Projects Administration or the Civilian Conservation Corps, or both, and which will be made available to the project through surveys, labor, materials, or other property including money, supplied by one or both of these agencies. A tabulation giving the breakdown of the estimated cost and the proposed financing procedure is attached.

The Interior Department Appropriation Act, 1941, contains an appropriation of \$3,500,000 which was made pursuant to the authority of the act of August 11, 1939. The estimated requirements for the Angostura project during the fiscal year 1941 are \$250,000 for construction by the Bureau of Reclamation, and \$200,000 for land acquisition and land development by the Department of Agriculture. The amount needed by the Department of Agriculture cannot be transferred to it from said appropriation of \$3,500,000, according to a ruling of the Comptroller General. However, the Department of the Interior is ready to join the Department of Agriculture in a recommendation to the Congress that by appropriate action it make available to the Department of Agriculture, pursuant to Section 12 (2) of the Act of October 14, 1940, such part of the \$3,500,000 appropriation item as is deemed necessary to meet the requirements of the Department of Agriculture on this and similar projects in the fiscal year 1941.

## SIZE OF FARM UNITS

Section 4 (c) (5) of the act of October 14, 1940, provides that the Secretary of the Interior "shall establish the size of farm units of irrigable lands on each project in accordance with his findings of the area sufficient in size for the support of a family on the lands to be irrigated." Surveys of the irrigable area of the



project are now under way and, although not yet completed, they have progressed sufficiently that I am able to determine that the maximum size of farm units for the project will be not more than 160 acres. The exact size of the farm units, which will vary somewhat over the project area in accordance with varying conditions of the irrigable lands, will be established after completion of the surveys. It has been agreed that the Department of Agriculture will investigate and survey the economic size of farm units for the Angostura project, and that its report and conclusions based on these studies will be made available to me.

### CONDITIONS PRECEDENT TO CONSTRUCTION

The success of the project will be better assured if certain steps, not specifically stated in the act of October 14, 1940, are made conditions precedent to the commencement of actual construction of physical features. The cost estimates given herein do not cover costs of rights of way proposed to be furnished by the Board of County Commissioners of Fall River County, and such construction should not be started until the participation by the County is fully assured. Neither should such construction proceed until the Department of Agriculture has made sufficient progress in obtaining control of lands reasonably to insure the reduction of large private holdings into units not exceeding the size to be established under Section 4(c) (5) of the Act, thus providing benefits for the maximum number of settlers.

### FINDINGS, CERTIFICATIONS AND RECOMMENDATIONS

Based on the foregoing report and supporting data concerning the proposed project, I make the following findings and certifications:

1. I find and certify that the proposed project has engineering feasibility.
2. I find that the estimated cost of the proposed construction is \$3,300,000, which is exclusive of the cost of participation by the Department of Agriculture now estimated at \$638,000, and of non-Federal contributions.
3. I find that the estimated cost which properly can be allocated to irrigation is \$3,300,000 (construction of irrigation features is estimated to require \$1,450,000 from General Fund appropriations, and \$1,850,000 from WPA or CCC funds, or from both).
4. I find that the estimated expenditures from appropriations made under the Act of August 11, 1939, as amended, to meet reimbursable construction costs allocated to irrigation do not exceed \$1,000,000 for dams and reservoirs on the project.
5. I find that no part of the estimated cost can properly be allocated to municipal or miscellaneous water supplies or power with the expectation that it probably will be returned to the United States in revenues therefrom.
6. I find that the water users probably can repay, in accordance with the requirements of Section 4 of the Act of October 14, 1940, \$1,450,000, which is equal to that part of the estimated cost allocated to irrigation to be met by expenditure of moneys appropriated pursuant to the Act of August 11, 1939, and the amendments thereto.
7. I find that no part of the estimated cost can properly be allocated to the irrigation of Indian trust and tribal lands, or to flood control.

I recommend that you approve the foregoing report and findings, and that you find, by your approval of this report, that services, labor, materials, easements and other property, including money, for the construction of the project, should be made available to the Department of the Interior and to the Department of Agriculture by the Work Projects Administration, the Civilian Conservation Corps, or other Federal agencies, to the extent necessary to make up the difference between the overall estimated costs of the project and the part thereof to be met by expenditures of moneys appropriated under the provisions of the Act of August 11, 1939, and its amendments. I also recommend that by your approval of this report you determine that the United States shall be reimbursed for such services, labor, *et cetera* made available to the Department of the Interior in such amounts, if any, as on final determination of construction costs will not increase the repayment obligations beyond \$1,450,000. The Department of Agriculture recommends that by your approval of this report you determine that the United States not be reimbursed for such services, labor, *et cetera* as are made available to that Department for utilization on this project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved March 6, 1941.

THE WHITE HOUSE,

(Signed) FRANKLIN D. ROOSEVELT.

# W. C. AUSTIN PROJECT<sup>1</sup>

## AUTHORIZED BY SPECIAL PROVISIONS IN RIVERS AND HARBORS' ACT, 1938

[Extract from] An act authorizing the construction of certain public works on rivers and harbors for flood control, and for other purposes. (Act June 28, 1938, 52 Stat. 1215, 1219, Public Law 761, 75th Cong. 3d sess.)

### RED RIVER BASIN

The Denison Reservoir on Red River in Texas and Oklahoma for flood control and other purposes as described in House Document Numbered 541, Seventy-fifth Congress, third session, with such modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable, is adopted and authorized at an estimated cost of \$54,000,000: *Provided*, That in the consideration of benefits in connection with the Denison Reservoir all benefits that can be assigned to the proposed Altus project and other such projects in Oklahoma shall be reserved for said projects.

The Lugert-Altus Flood Control and Reclamation Reservoir located on the North Fork of the Red River in Oklahoma, is hereby authorized for construction at an estimated cost of \$2,497,000, on the following basis as to a division of the cost of construction:

(a) The Chief of Engineers shall report to the President on or before November 1, 1938, the value of said Lugert Reservoir as a flood control works, and the value so reported shall be the maximum amount herein authorized to be appropriated as a charge against any funds appropriated and available for the construction for flood control projects.

(b) The remainder of the estimated cost of such Lugert Reservoir, namely, the estimated total cost of the reservoir, less the amount reported by the Chief of Engineers as the value of said reservoir as a flood control project, is also hereby authorized to be appropriated out of the special fund in the Treasury of the United States created by the Act of June 17, 1902 (43 U. S. C. 391, 411), and therein designated "the reclamation fund" for the construction of said Lugert Reservoir for reclamation and irrigation as reported in Senate Document Numbered 153, Seventy-fifth Congress, third session, and as further authorized by the last paragraph on page 37

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<sup>1</sup> The name of the Lugert-Altus project was changed to W C Austin project by congressional action, May 16, 1947 (P. L. 69, 80th Congress).

of Public Act Numbered 497, Seventy-fifth Congress, third session, providing that the construction of said Lugert Reservoir and Altus reclamation project shall not be undertaken until the Chief of Engineers and the Secretary of the Interior join in an agreement as to the division of cost of the construction of the said reservoir as provided herein. (52 Stat. 1219.)

THE SECRETARY OF THE INTERIOR,  
*Washington, January 21, 1941.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Acts of June 25, 1910 (36 Stat. 835), and December 5, 1924 (43 Stat. 701), provide, in effect, that an irrigation project shall not be constructed by the Bureau of Reclamation under the Reclamation Law (1) until the Secretary of the Interior (a) has obtained detailed information concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development of the project, and (b) has made a finding in writing that the project is feasible, is adaptable for actual settlement and farm homes and will probably return the cost thereof to the United States; and (2) until the project has been recommended for construction by the Secretary and approved by the President.

The Reclamation Project Act of 1939 (53 Stat. 1187), provides a somewhat different procedure to be followed in undertaking the construction of new projects, particularly new multiple-purpose projects. However, moneys were appropriated for the construction of the Altus project in the Interior Department Appropriation Act, 1940, approved on May 10, 1939 (53 Stat. 685). Under Section 7 of the Reclamation Project Act of 1939, it is therefore in the discretion of the Secretary of the Interior as to whether the new procedure shall be followed in connection with the Altus project. Since this project already has been authorized specially by the Act of June 28, 1938 (52 Stat. 1215, 1219), which makes special provisions for cooperation between the Chief of Engineers and this Department, it is advisable to proceed in conformity with the statutory provisions referred to in the preceding paragraph, for only under them can the special legislation for the project be carried into effect.

Accordingly, the following report on the Altus project in Greer, Kiowa, and Jackson Counties in southwestern Oklahoma is made

to you in conformance with the provisions of the above cited acts of June 25, 1910, and December 5, 1924:

The lands to be benefited by the project surround the town of Altus and have been cultivated for many years, being largely homesteaded prior to 1890. The farms are well improved and, in years of favorable distribution of rainfall, good crops consisting principally of cotton, winter wheat, and grain sorghums are grown. Land values range from \$50 to \$100 per acre.

Crop yields are very poor in dry years, and during the recent drought heavy losses were suffered in the area due to crop failures and forced sale of livestock. Nearly 130,000 acres of arable land are available but the water supply is only sufficient for the irrigation of 20,000 acres in practically all years and an additional 50,000 acres about half of the time. If the irrigation project had been in existence the last thirty years, the average irrigated area would have been 47,000 acres. A water supply for the project can be obtained from the North Fork of the Red River. This stream derives its runoff from heavy rains on 2,560 square miles of watershed above Lugert, Oklahoma. The rate of runoff is highly variable, ranging from negligible amounts in the dry season to several thousand second-feet following intense rains. Storage is essential to the regulation of the variable runoff for irrigation purposes.

The principal features proposed to be constructed are a reservoir of 200,000 acre-feet capacity on the North Fork of the Red River at or near the site of an existing dam, about one mile west of Lugert; a main canal of 1,000 second-feet initial capacity reaching from the dam to the project lands; and a lateral and drainage system to serve 70,000 acres of land, extending from about four miles north of Blair to about eight miles south of Altus. Of the reservoir's capacity 163,000 acre-feet are to be reserved for irrigation and municipal purposes, 20,000 acre-feet for flood control, and 17,000 acre-feet of superstorage above flood control storage to pass extreme floods. The Lugert Dam is planned as a rock masonry structure having a maximum height of 100 feet, with earth-fill embankments extending approximately 500 feet from either end of the rock construction. About 18,000 feet of dike, with a maximum height of 40 feet, would be required on the east side of the reservoir. Sections of the Chicago, Rock Island, and Pacific Railroad and Oklahoma State Highway No. 9 in the reservoir site, each about  $4\frac{1}{2}$  miles in length, would need to be relocated. The length of the main canal and its branch canals would be about forty miles.

The flow of the North Fork is now partially developed for municipal and other beneficial purposes by the city of Altus. Its system includes a channel storage reservoir (Lake Altus), having a capacity of about 4,900 acre-feet, and a pipeline capable of diverting 3,600 acre-feet annually. Future requirements for municipal purposes by the city of Altus are estimated at 4,800 acre-feet annually, which amount is sufficient for a population of 25,000, about three times the present population. Allowance has been made in the water supply studies for this use ahead of irrigation diversions.

The total estimated cost of construction is \$5,600,000. This is divided approximately as follows:

Lugert dam and reservoir, including railroad and highway relocation	\$2,695,000
Main canals	1,198,000
Lateral system	770,000
Drainage system	700,000
Miscellaneous items	237,000

The estimated cost of the reservoir exceeds by about 8 percent the estimate appearing in the Act of June 28, 1938. The increase is due in part to a general price rise and in part to increased costs anticipated because of the use of Work Projects Administration Labor. It has been concluded that the increase is not unreasonable and that it raises no question of the authority to proceed.

Based on the experience of the Bureau of Reclamation on other projects, it is considered within the ability of the agricultural water users to repay \$2,000,000 of the construction cost in a period of forty years, in addition to paying operation and maintenance costs of \$70,000 annually. The Chief of Engineers of the War Department, in a manner concluded to be substantial compliance with the Act of June 28, 1938, *supra*, has determined the value of the reservoir as a flood control works to be \$1,130,000, and an agreement dividing the reservoir cost charging this amount to flood control has been reached. Participation by the city of Altus for delivery of water from the reservoir through the project main canal to the city is expected to be \$1,080,000. It is planned to secure non-reimbursable funds, in addition to the flood control funds, to the extent of at least \$1,390,000 by the participation of the Work Projects Administration to the extent of its existing authority or continuations of this authority, and to secure any part of this amount which can not be made available by that administration by means of Civilian Conservation Corps projects authorized under the Act of June 28, 1937 (50 Stat. 319), as extended. Considering the Civilian Conservation Corps program now being carried on in the Bureau of Reclamation and the fact that the authority to carry on Civilian Conservation Corps activities extends to July 1, 1943, I have concluded that there is reasonable assurance that the Civilian Conservation Corps program can be relied on to meet that part of this amount that the Work Projects Administration may be unable to supply because of its limited authority.

The sum of the amount which probably can be repaid by the water users (agricultural and city), the amount to be secured from flood control appropriations and the amount to be secured by means of Work Projects Administration or Civilian Conservation Corps projects, is equal to the estimated cost of construction of the entire Altus project.

On March 29, 1940, an election was held at Altus to vote on the formation of the Lugert-Altus Irrigation District, which was carried by a vote of 333 to 42. District boundaries, as established by the Jackson County Commissioners on February 24, 1940, show

a gross area of 80,000 acres of arable lands. Land classification will reduce this area to 70,000 acres of irrigable lands.

Pursuant to the authorization contained in the Interior Appropriation Act of 1939:

For cooperative investigations, including investigations in the so-called "Dust Bowl," in cooperation with the Corps of Engineers, the Farm Security Administration, and other Federal agencies, of irrigation, flood control, and resettlement possibilities of proposed projects, \$200,000, of which \$25,000 shall be available for the proposed Altus project, Oklahoma \* \* \*

the Department of Agriculture made an investigation of the project and submitted a report on March 1939. The findings of that Department were essentially as follows:

Very little new land will be brought under cultivation, as a high percentage of the area is already in crops. Any advantage to be derived would come through increased production. The most profitable crops under irrigation would be much the same as under dry farming although a slight increase in cotton and alfalfa acreage might be expected. On approximately 21,000 acres in the project, the estimated income through the use of water would be great enough to constitute a decided advantage to the farms using it. On the remainder of the area considered for inclusion in the 70,000 acre project where the soils are heavy and the sub-soils slowly permeable, the incomes of the farmers would not be greatly improved over dry farming conditions. Opportunities for new settlers would be few and irrigation of the area does not offer much opportunity for the establishment of a resettlement project. Rainfall is sufficient to produce fairly good yields in most years and the supply of water for irrigation would often be short in the dry years when it would most be needed. Farm families in the area are not experienced in irrigation and would require some guidance in the handling of their irrigation problems.

The comments of the Bureau of Reclamation on this report are to the effect that only the better lands would be included in the project, that there would be minor shortages in the drier years, but that an average area of 47,000 acres would be irrigated, varying from approximately 20,000 acres in the drier years to 70,000 acres when the river flow is greater than normal. Both the Department of Agriculture and this Department are in agreement that each project farm should have a small, stable, irrigated area with the balance of the farm to be irrigated with secondary water to the extent available.

Based on the foregoing data and other information available to the Department concerning the proposed project, I find that it is feasible from an engineering standpoint, and that it is economically feasible provided nonreimbursable funds such as through the expected participation of the Work Projects Administration or the Civilian Conservation Corps, or both, on the basis above discussed, in addition to the flood control allocation, are made available in the amount of not less than \$1,390,000 of the present estimated cost. I find further that the project, already settled and developed, is adaptable to further stabilization and development through irrigation, and that the amounts to be expended from the reclamation fund will probably be returned to the United States, together with such portion of the contributions by the Work Proj-

ects Administration and Civilian Conservation Corps as the Department determines the water users can reasonably be expected to repay, it now being expected on the basis of the present estimated costs of construction that all such contributions in excess of \$1,390,000 will be set up as repayable. Under the authority of the Act of June 28, 1938, costs allocated to flood control will not be returned to the United States; and considering present cost estimates, contributions by the Work Projects Administration or Civilian Conservation Corps, or both, to the extent of \$1,390,000 will not be required to be reimbursed, since reimbursement is not required under the acts by which these funds are made available; and since a finding that the costs of a project will probably be returned to the United States is necessary only as to expenditures from the reclamation fund (opinion of the Attorney General of September 7, 1937, unpublished).

The Interior Department Appropriation Act of 1940 contains an appropriation of \$500,000 for the project and the Corps of Engineers of the War Department has made available \$500,000 as a contribution toward the construction of the Lugert dam and reservoir. I recommend that the Altus project be approved and that construction be started as soon as pending applications for projects to be undertaken by the Work Projects Administration in connection with the Altus project have been approved by you.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved February 13, 1941.

(Signed) FRANKLIN D. ROOSEVELT.



# BAKER PROJECT

THE SECRETARY OF THE INTERIOR,  
*Washington, March 17, 1931.*

THE PRESIDENT,  
*The White House.*

MY DEAR PRESIDENT: Section 4 of the act of June 25, 1910 (36 Stat. 835) provides in effect that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat. 388) and acts amendatory thereof or supplementary thereto, shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, section 4, act of December 5, 1924 (43 Stat. 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary, until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features requiring investigation and report in connection with the Baker Reclamation Project, Oregon, under subsection B, section 4, act of December 5, 1924, *supra*, will be discussed in the order in which presented in that subsection, as follows:

## IRRIGATION PLAN AND WATER SUPPLY

The Lower Powder River Valley, with a length of 12 miles and an average width of one mile, containing a gross area of 7,400 acres, lies from 15 to 20 miles northeasterly of Baker City, Oregon. The irrigable lands of the valley, comprising about 6,000 acres, are served by canals diverting from Powder River, which traverses the entire valley, and a large part of the lands have been under irrigation for many years. Stream flow has never been adequate after mid-summer to meet the valley requirements and has

been further reduced in recent years by upstream irrigation development. It is proposed to construct the Thief Valley reservoir on Powder River immediately above the valley to be irrigated, with a capacity of 15,000 acre feet, which will be adequate to provide a full water supply. Unused winter and spring flood waters exceed the proposed reservoir capacity in every year. No other works are contemplated.

### ENGINEERING FEATURES

The proposed impounding dam will be triple arch concrete structure with a maximum height for the central arch of 52 feet from rock foundation to top of dam, and a total length, across the stream, of 380 feet, requiring in its construction 5,500 cubic yards of concrete. This dam will raise the stream level 40 feet. Testing of the foundations by pits and diamond drill indicates good rock at shallow depths. The dam is to be of ample section to withstand overflow to an estimated maximum depth of 10 feet over the central arch, the other arches to be built above flood levels. Release of storage will be controlled by two simple slide gates.

### CONSTRUCTION COST (ESTIMATED)

Dam .....	\$135,000
Right of way for reservoir flowage and dam .....	42,000
Previous investigations and reports .....	12,000
Foundation testing .....	5,000
Contingencies .....	6,000
Total .....	<u>\$200,000</u>

### LAND AND ITS DEVELOPMENT

All of the lands to be benefited are settled and at present generally farmed to the limit of the available water supply. They have been classified by a representative of the Bureau of Reclamation, who reported a tillable area of 3,200 acres and a pasture area of 2,800 acres, with the balance of 1,400 acres either waste land or lands not served by existing canals from Powder River. A part of the latter may later be added to the indicated tillable area. Tillable lands are now principally devoted to the production of alfalfa and grain which is largely converted locally into dairy products, beef, and mutton. With the augmented water supply, crop production will be materially increased, which will permit a corresponding increase in the number of stock on the farms, now comprising 13,000 sheep; 1,700 cattle, and a few hogs. The pasture lands are unfitted by high water table and periodic inundation for the production of tilled crops, but constitute a valuable adjunct in the established farming operations. Their usefulness will be increased through the augmented water supply by increase in grazing capacity and the lengthening of the grazing season. The entire area is settled by experienced stockmen in holdings of less than 160 acres of tillable land, and most farms have fair to good improve-

ments. No settlement problem is involved. The increased crop production to result from the supplemental water supply is expected to be reflected in an increase in crop values much larger than the increase in costs of production and in enhanced profit.

#### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The construction cost is estimated at \$60.00 per acre for the tillable land, if no part of the cost is collected from the pasture lands which will be benefited to a lesser extent than the tillable lands. A proposed contract with the Lower Powder Irrigation District, comprising all of the valley lands, provides for repayment of costs in 40 years, requiring an annual payment of approximately \$1.60 per acre for construction if the entire cost is borne by the tillable lands alone. Operation and maintenance will be conducted by the District and such costs for the reservoir should be small. Increased annual crop yields to result on the tillable lands are estimated at not less than \$8.00 per acre. These conditions fully justify the belief that construction costs will be repaid as intended. I therefore recommend approval of this project and issuance of authority to this department to proceed with construction. By the act of January 12, 1927 (44 Stat. 959), \$450,000 was appropriated for commencement of construction; and subsequent appropriations have kept this amount available to the present time.

Very truly yours,

(Signed) RAY LYMAN WILBUR.

Approved March 18, 1931.

(Signed) HERBERT HOOVER,  
*President.*

# BALMORHEA PROJECT

THE SECRETARY OF THE INTERIOR,  
*Washington, March 16, 1944.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Balmorhea project involving the irrigation of approximately 7,520 acres of land in Reeves County, Texas, and pursuant to the authority of the Act of August 11, 1939 (53 Stat. 1418), as amended (herein called the Act), I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

## PROJECT PURPOSE

The primary purpose of the project proposed is to provide a supplemental water supply for approximately 7,520 acres of land in the Madera Valley near the town of Balmorhea in west central Texas. This would be done through the purchase of additional water rights, the repair and modernization of existing facilities, and the construction of a new canal. The additional water thus made available would materially increase crop production on the project lands and also provide off-season water to irrigate winter pasturage for livestock.

The immediate construction of the project would make possible an increased production of food crops for people and livestock now urgently needed. The project if completed now would also aid in solving many local postwar problems. By providing an assured water supply it would help to stabilize the economy of the area and so prevent the migration elsewhere of the farmers who, without additional irrigation water, are unable to support their families. It would offer opportunities after the war for a small number of new settlers to establish farm homes.

## THE PLAN

The supplemental water supply would be provided by purchasing water rights in Phantom Lake Spring. A main canal, concrete lined to prevent excessive loss of water through seepage, would be constructed. The existing Madera Diversion Dam, main canals, and laterals would be rehabilitated. Structures contemplated for the project, in addition to the concrete canal lining, would consist of a concrete canal heading, a metal flume, closed conduits, and the usual turnouts, wasteways, small bridges, and similar features. An adequate water supply is believed to be available for the lands to be benefited by the proposed project works.

Changes in these general plans may be found necessary, but any changes would be of a minor nature and would neither alter the general objectives of the project nor result in material departure from the findings which are predicated on the plans for the project.

## PARTICIPATION OF FEDERAL AGENCIES

The Bureau of Reclamation would secure the necessary water rights to Phantom Lake Spring, reconstruct the diversion dam and canal system, and would construct a new canal and other necessary and appurtenant structures. Subject to change, the Bureau also would operate the system after it is built. The Bureau would negotiate contracts with the water users for the repayment of the reimbursable construction charges.

The War Food Administrator, acting in the stead of the Secretary of Agriculture, has transmitted a letter, which is attached, indicating his approval of the project and the extent of the proposed participation by the Department of Agriculture. From the attached letter it will be noted that the War Food Administrator concurs in my belief that the construction is justifiable as an aid in the production of needed agricultural products.

Services, labor, materials, supplies, equipment, and similar items which may become available through the Selective Service System, Prisoner of War camps, or other Federal agencies may be utilized under the terms and conditions fixed by such agencies, if, in my opinion, such use would effectively expedite construction of the project.

## PARTICIPATION OF NON-FEDERAL AGENCIES

All of the lands to be benefited by the project lie within the boundaries of the Reeves County Water Improvement District No. 1, of Balmorhea, Texas. It is expected that a contract with the Government would be made by this, or a similar organization embracing the project lands, for the repayment of that part of the construction costs which are determined to be reimbursable. The water users benefited by the work of the Department of Agriculture would be required to repay the reimbursable monies ex-

pended in that work in accordance with the Act. Aid which may be offered by the local interests would be accepted.

### ESTIMATED COSTS AND FINANCING PROCEDURE

The cost of the project works which would be undertaken by the Bureau of Reclamation is estimated to be about \$347,000. The Department of Agriculture would undertake activities in connection with the project, and pursuant to section 5 of the Act, which are estimated to cost \$569,000. The activities of both agencies would be financed with monies appropriated for Water Conservation and Utilization projects pursuant to section 12 of the Act. The total expenditures are estimated to be \$916,000.

The water users could repay approximately \$255,600 of the investment in the works proposed to be built by the Bureau of Reclamation. The remainder as authorized by the Act would be non-reimbursable.

The water users could repay approximately \$307,000 of the cost of the works proposed by the Department of Agriculture. The remainder of these costs, as authorized by the Act, would be non-reimbursable.

Sufficient funds for the initiation of construction of the project in carrying out the function of the Department of the Interior under the Act have been appropriated and are now available.

### SIZE OF FARM UNITS

As the exact size of the farm units in the project area may vary in accordance with the varying conditions of the project lands, limitations on the various holdings would be established after more complete and final surveys had been made. It now appears that ultimately the maximum sized holdings should not exceed 160 acres of irrigable land. In this connection, considering the problems attendant on farm operation during the war and the need for the greatest possible production of agricultural products with the available farm labor supply, it may be desirable to determine, within the limits of the Act, that for the duration of the war only, now existing land holdings in single ownership will be regarded as farm units with respect to the limitations on delivery of water even though they exceed in area the normal maximum to be established for farm units on the project.

### FINDINGS, CERTIFICATIONS, AND RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

1. The proposed project has engineering feasibility.
2. The total estimated cost would be \$347,000.
3. The estimated cost which properly could be allocated to irrigation is \$347,000.

4. The water users could probably repay, in accordance with the requirements of Section 4 of the Act, approximately \$255,600 of the cost of construction.

5. No part of the estimated costs properly could be allocated to municipal or miscellaneous water supply or power.

6. No part of the estimated costs properly could be allocated to the irrigation of Indian trust or tribal lands.

7. No part of the estimated costs properly could be allocated to flood control.

8. The proposed construction is justifiable as an aid in the production of needed agricultural products.

If you approve the project, it is planned to proceed immediately with matters relating to land acquisition, water rights, and repayment contracts so that the requirements of the statutes as to those matters can be met as promptly as possible. The project has been cleared by the War Production Board for construction and procurement of materials.

On the basis of the foregoing report and findings, I recommend that you approve this project for construction.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved April 15, 1944.

(Signed) FRANKLIN D. ROOSEVELT.

# BELLE FOURCHE PROJECT<sup>1</sup>

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Denver, Colo., April 29, 1904.*

Mr. F. H. NEWELL,  
*Chief Engineer, U. S. R. S., Washington, D. C.*

SIR: The undersigned have examined the locality, plans and estimates of the Belle Fourche project, as surveyed and designed by Mr. R. F. Walter, and have to submit the following report:

The project contemplates the diversion of Belle Fourche River into a large conduit, to carry it to a reservoir to be constructed on Dry Creek, from which it is to be conducted in canals to irrigate large tracts of land in the valleys on both sides of Belle Fourche River as far east as Willow Creek.

The lands to be irrigated are very productive, but a considerable portion are rolling, making distribution of irrigation waters rather expensive. No very difficult engineering problems are presented, the most serious being the floating ice that occurs, and must be safely handled every spring.

The limit of the project is the available water supply, upon which the data is very meagre, consisting only of measurements since last June, during which time the rainfall in the basin as indicated by the records was far above normal. For these reasons we have directed a survey of a diversion of the Little Missouri into the Belle Fourche, and have so modified the designs of the system, as to provide for the use of the waters of Crow, Owl, Indian, and Horse Creeks. We have also directed a reconnaissance of the Belle Fourche and Little Missouri basins to discover possible storage facilities, to regulate the freshets that would otherwise exceed the capacity of the inlet canal. With the waters of the Little Missouri, and the creeks mentioned, we are of the opinion that the available water supply is ample for the irrigation of not less than 60,000 acres of land, and on this basis the cost, as at present estimated, would be about \$34 per acre, which may be diminished by increasing the acreage, if cheap storage can be found above.

<sup>1</sup>An extension to this project was authorized as part of the Missouri River Basin Project under terms of the Flood Control Acts of 1944 and 1946.



We consider the project feasible, and recommend that Mr. Walter be instructed to continue the investigations, and to prepare plans and specifications preparatory to early construction.

We also recommend that the Honorable The Secretary of the Interior be requested to give his preliminary approval to the Belle Fourche Project, and that the sum of \$2,100,000 be set aside in the reclamation fund for its construction.

When departmental approval is obtained, we recommend that the land owners under the proposed system be informed, and advised to form an organization, which can deal with the department in arranging details to conform with the law. About one-half the land to be irrigated is in private ownership, and the balance public land.

(Signed) A. P. DAVIS,  
*Asst. Chief Engr.*  
J. H. QUINTON,  
*Consulting Engr.*

MAY 7, 1904.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: In accordance with the act of June 17, 1902, and instructions from you, surveys have been conducted in South Dakota, particularly on what is known as the Belle Fourche project. There is ample irrigable land here, but the water supply is limited. It is believed however, that there is sufficient for the reclamation of 60,000 acres of land, about half of which is in private ownership.

The plans and estimates for this project have been passed upon by Messrs. A. P. Davis and J. H. Quinton, and a report made to the Chief Engineer recommending further detailed work leading to ultimate construction. The estimates show that the cost of reclamation will be less than \$35 per acre.

On the basis of the information now at hand, I respectfully recommend that the sum of \$2,100,000 be set aside from the reclamation fund for the construction of this project, contingent upon securing suitable land and water rights, organization of present land owners, and satisfactory completion of various engineering details.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, May 10, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter to the Department under date of the 7th instant you presented for my consideration the matter of the Belle Fourche Project, South Dakota, under act of June 17, 1902, —32 Stat., 388—.

It appears as the result of surveys and investigation that the water supply of the region is limited; that there is a large quantity of irrigable land; that there is enough water to reclaim about 60,000 acres of land, about half of which is in private ownership, and that the estimates show that the cost of reclamation will be less than \$35.00 per acre.

Your recommendation is that the sum of \$2,100,000 be set aside from the reclamation fund for construction of this project, contingent on securing suitable land and water rights, organization of present land owners and satisfactory completion of various engineering details.

In view of your recommendation I hereby set aside the sum of \$2,100,000, or so much thereof as may be necessary, from the sum provided by the Act mentioned, for use in the construction of this project, subject to the contingencies above set forth.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# BISMARCK PROJECT<sup>1</sup>

THE SECRETARY OF THE INTERIOR,  
*Washington, April 5, 1940.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: A brief description of the Bismarck irrigation project in North Dakota and recommendations for its construction under the provisions of the \$5,000,000 appropriation item in the Interior Department Appropriation Act of 1940 for construction of water conservation and utilization projects are contained in an attached letter.

If you approve the recommendation, you may wish to send the letters which are enclosed to the Secretary of the Treasury and to the Commissioner of the Work Projects Administration.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE SECRETARY OF THE INTERIOR,  
*Washington, April 5, 1940.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contains an appropriation of \$5,000,000 from which allocations may be made by you.

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<sup>1</sup> The *Bismarck* Project was found feasible by the Secretary under the original Reclamation Act prior to its amendments, but later reclassified as a secondary project. For the Director's letter and the Secretary's approval of the project see correspondence dated November 14, 1904 and November 18, 1904, under the Buford-Trenton Project (pages 91, 92).

Under terms of the Water Conservation and Utilization Act of August 11, 1939, as amended, a project in the same general area was found feasible.

For construction, in addition to labor and materials to be supplied by the Work Projects Administration, of water conservation and utilization projects, \* \* \* in the Great Plains and arid and semi-arid areas of the United States, \* \* \*

All expenditures from the appropriation and as much of the expenditures from the funds of the Work Projects Administration as the President directs are to be repaid. Hereinafter the appropriation item will be termed the "1940 Water Conservation Appropriation."

The Bismarck irrigation project near Bismarck in Burleigh County, North Dakota, is the type of project that is contemplated to be constructed under the provisions of this item. It is included in the projects recommended by the Northern Great Plains Committee in its 1938 report to you, and subject to the provisions contained herein, I concur in this recommendation.

The lands to be irrigated, comprising approximately 4,800 acres, are situated on the east side of the Missouri River, directly south of Bismarck. They lie in a strip from 1½ to 2 miles wide between the Missouri River and a high bench to the east. Water for irrigation is to be obtained from the Missouri River, pumped to a height of approximately 20 feet, and conveyed to the land by ten miles of canals and a system of laterals, sub-laterals, and farm ditches. It is planned to secure electrical energy for pumping from the North Dakota Power and Light Company.

A market for crops will be provided by the City of Bismarck and access to other markets will be furnished by the main line of the Northern Pacific and a branch line of the Minneapolis, St. Paul & Sault Ste. Marie Railway which pass through Bismarck. The crops will include hay and other feed crops, small grains and vegetables. Dairying probably will become an important industry.

Some of the land holdings are in large tracts, and it will be desirable to subdivide these to the extent that not more than an adequate sized unit of irrigable lands, in the opinion of the Secretary of Agriculture, is held in one ownership, and tenancy on irrigated lands should be permitted only if the best use of the land and the interests of the tenants are assured. A considerable part of the project will be settled with distressed drought-stricken farmers.

Partial flooding of the area has occurred during the icebreak in the early spring months, or during the flood crest in early summer, for 12 of the last 57 years. Serious damage to the irrigation system would not occur from the overflow, but it would be detrimental to houses and other improvements in the project and cause some damage to crops. The overflow can be prevented by a levee along the river bank, and the Corps of Engineers, U. S. Army, is now investigating the feasibility of a levee project. It would be desirable to place the settlers directly on the lands, but if flood control is found to be infeasible, the project may be developed as a community type, the farmers' homes and other buildings being located on the high ground immediately to the east of the irrigable lands.

Construction of the irrigation features should be undertaken

by the Bureau of Reclamation, which has already completed plans and preliminary designs, Bureaus of the Department of Agriculture are expected to arrange for settlement, repayment of reimbursable charges and the operation and maintenance of the project. The Department of Agriculture will include farm ditches and rough land levelling in the construction program and will obtain control of the lands by purchase and subsequent sale or lease to the settlers. Funds for the purchase of the lands are already available to the Department of Agriculture.

The total estimated cost of construction is \$590,000. The experience of the Bureau of Reclamation on projects which are similarly located indicates that the water users will be able to repay at least \$250,000 of this amount over a period of forty years and in addition carry the annual cost for electrical energy, other operation and maintenance, and probably all land purchase charges. This latter sum should be obtained from the 1940 Water Conservation Appropriation and be expended primarily for administration, supervision, materials, supplies, and rights of way. The remaining amount of \$340,000 required to construct the project is expected to be provided by the Work Projects Administration and to be expended largely for relief labor. A tabulation is attached in which is shown a tentative breakdown of expenditures from the two funds. The estimate of expenditures from WPA funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to the fiscal year 1940. The efficiency with which the work can be conducted under the present WPA act is not known. Therefore, the estimate of WPA funds may need revision at some later date.

I recommend that the construction of the Bismarck project be undertaken by the Bureau of Reclamation; that the land development program and the arrangements for settlement, repayment, and operation and maintenance be conducted by the Department of Agriculture; and that assistance be given by the National Resources Planning Board in the planning and coordinating field.

I recommend that an allocation of \$250,000 from the 1940 Water Conservation Appropriation be made to the Department of the Interior, Bureau of Reclamation, and that the Work Projects Administration be requested to give prompt consideration to the project's application which will be filed by the Bureau of Reclamation to secure the remaining \$340,000 needed for construction of the Bismarck project. The allocation from the 1940 Water Conservation Appropriation is, of course, to be reimbursable as required by law. The extent that funds expended on the project beyond this allocation can be made reimbursable will be made the subject of a further report and recommendation to you when the project is completed.

The Department of Agriculture and the National Resources Planning Board will be reimbursed for all services connected with the construction of the project by transfers or advances from the funds made available to the Department of the Interior, Bureau of Reclamation, for construction of the project.

Letters containing the comments of the Department of Agriculture and the Work Projects Administration are enclosed.

Actual construction will not be started until the Department of Agriculture has made sufficient progress in its efforts to obtain control of the land at prices which do not exceed appraised valuation, to insure the successful operation of the project. The time required for construction will depend largely on the availability of relief labor but probably will not exceed two years.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved April 26, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

# BITTER ROOT PROJECT

## BITTER ROOT IRRIGATION PROJECT AUTHORIZED FOR REHABILITATION

[Extract from] An act for the rehabilitation of the Bitter Root irrigation project, Montana. (Act July 3, 1930, 46 Stat., 852, 853, Public Law 506, 71st Congress, 2d sess.)

\* \* \* That there is hereby authorized to be appropriated from the reclamation fund established by the Act of June 17, 1902 (Thirty-second Statutes, page 388), the sum of \$750,000, or as much thereof as may be necessary to be used for the rehabilitation of the Bitter Root irrigation project in Montana.

\* \* \* \* \*

SEC. 6. The Secretary is authorized to perform any and all acts and to make and enforce all needful rules and regulations for effectuating the purposes of this Act.

OFFICE OF THE SECRETARY,  
*Washington, November 25, 1930.*

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

MY DEAR MR. SPEAKER: Pursuant to section 5 of the Act of July 3, 1930 (Public No. 506, 71st Cong.), the following report is submitted concerning the Bitter Root project in Montana:

The appropriation of \$550,000 is requested for the fiscal year 1932. This sum, if appropriated, will be utilized as follows:

(a) Five hundred thousand dollars, or so much thereof as may be necessary, for liquidating bonded and other outstanding indebtedness, on the basis of not exceeding 75 per cent of the

principal and 75 per cent of accrued interest found by field investigation to be approximately as follows:

District bonds, par value.....	\$552,000
Principal on bonds.....	13,000
Refunding bonds, series No. 1.....	12,000
Refunding bonds, series No. 2.....	59,500
Interest on bonds to Mar. 4, 1931.....	18,869
Operation and maintenance warrants.....	3,530
Interest on operation and maintenance warrants.....	421
Construction fund warrants.....	6,961
Interest on construction warrants.....	386
Total .....	<u>666,667</u>
75 per cent of \$666,667.....	500,000

(b) Fifty thousand dollars or so much thereof as may be necessary, for replacing wooden turnouts and flumes estimated to cost:

Replacement 11 turnouts.....	\$ 2,500
Replacement 5,420 linear feet, wooden flume.....	<u>47,500</u>
	\$ 50,000
Total .....	550,000

Subsequent appropriations will be requested as need may arise, the total of such appropriations not to exceed the sum of \$750,000 heretofore authorized.

Before any funds are used or advanced a contract satisfactory to the Secretary of the Interior will be executed by the Bitter Root irrigation district obligating that district to repay the funds so used or advanced within not to exceed 40 years, with interest at the rate of 4 per cent per annum from the date of use or advancement until repaid. The contract will provide for a lien on the land within the boundaries of the district and on the irrigation system of the project. Such additional contracts will be executed as may be found necessary as an incident to the liquidation of outstanding bonded and other indebtedness on the basis of not to exceed 75 per cent of the principal and accrued interest.

The Bitter Root project comprises an area of nearly 20,000 acres located in the southwestern portion of Montana. It has a fertile soil, an adequate water supply, and a favorable climate. The principal cash crops are apples, sugar beets, peas, cabbage, and head lettuce, while sour cherries are growing in importance. The major portion of the irrigable area is used for the production of forage and grain crops to be fed to livestock. A record has been kept during recent years of the cropped area but not of the yields. Based upon a conservative estimate of yields and prices the average value per acre of crops produced in 1929 was approximately \$45. Further detailed information relative to the project will be found on pages 227 to 234 of the hearings before the Committee on Irrigation and Reclamation, House of Representatives, Seventy-first Congress, second session, dated March 6, 1930.



Year	Loan	Interest	Amor- tized re- payment	Opera- tion and mainte- nance costs	Total expendi- tures	Total receipts	Surplus	Total Surplus
1931....	\$550,000	\$11,000	—	\$33,000	\$49,000	\$64,250	\$15,250	\$15,250
1932....	75,000	23,500	—	26,000	49,500	66,000	16,500	31,750
1933....	75,000	26,500	—	24,000	50,500	67,750	17,250	49,000
1934....	50,000	29,000	—	22,000	51,000	69,500	18,500	67,500
1935....	( <sup>1</sup> )	30,000	—	22,000	52,000	69,500	17,500	85,000
1936 }	—	—	\$40,183	20,000	60,183	65,000	4,817	131,340
1955 }	—	—	—	—	—	—	—	—
1956 }	—	—	—	—	—	—	—	—
1970 }	—	—	40,183	20,000	60,183	65,000	4,817	68,595

<sup>1</sup>Surplus reduced \$50,000 in 1935 to complete flume replacements.

<sup>2</sup>Surplus available for replacement of 9,000 linear feet of wooden flume estimated to cost \$135,000, which work will extend over a period of about 5 years.

Total receipts are based on an assessment of \$3.50 per acre, which can be increased to \$4 per acre to cover any deficits.

This financial set-up is based upon the assumption that during the first five years, when flume replacements are being made, interest only will be paid on funds advanced by the United States, and the district will levy assessments such that the total receipts, including money received from the sale of land, water, and miscellaneous revenues, shall be not less than the amounts above shown. The amount of the loan, \$750,000, is to be amortized and payments extended over a period of 35 years requiring an annual installment of approximately \$40,183. The major portion of the 5 miles of the existing flumes are to be replaced with permanent earthen canals, leaving about 9,000 feet of wooden flumes that will have to be replaced a second time, beginning about 1955, at an estimated cost of \$135,000. The financial set-up shows that the necessary surplus can be provided without increasing the annual assessments and collections.

Premises considered, it is my opinion that by the action proposed the Bitter Root project can and will be placed upon a sound basis from a financial and economic standpoint and that the funds used or advanced will be returned to the United States as required by law.

Very truly yours,

(Signed) RAY LYMAN WILBUR.

THE OFFICE OF THE SECRETARY,  
Washington, February 23, 1944.

THE PRESIDENT,  
The White House,  
(Through the Bureau of the Budget).

MY DEAR MR. PRESIDENT: An investigation has been made of the Woodside Unit of the Bitter Root project involving the irriga-

tion of approximately 18,630 acres of land in Missoula and Ravalli Counties, Montana, and pursuant to the authority of the act of August 11, 1939 (53 Stat. 1418), as amended, (herein called the Act) I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

### PROJECT PURPOSE

The primary purpose of the proposed project would be to furnish a supplemental water supply to approximately 18,630 acres of land, located on the west side of the Bitterroot River between the towns of Lolo and Hamilton, Montana. The immediate development of this area would provide a means of increasing the production of agricultural products now vitally needed. After the war it is believed that the project would contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing new homes and opportunities for additional farm families.

### THE PLAN

The larger and most westerly of two canals proposed for construction would replace an old abandoned canal for a short distance and would be extended to have a total length of about 35 miles. This canal, which would be known as the Woodside Canal, would have an initial capacity of 300 second feet. A second canal, which would be known as the Florence Canal, would carry an estimated 90 second feet of water for a total distance of about sixteen miles. Woodside Canal would receive water from the Bitterroot River at a point about two miles north of Hamilton and the Florence Canal would receive its water from the Bitterroot River at a point about four miles north of Stevensville. Adequate storage capacity in an existing reservoir constructed by the Montana Water Conservation Board would be acquired by purchase.

Structures contemplated for the development would consist of siphons, culverts, and the usual turnouts, wasteways, small bridges, and similar features.

Changes in these general plans may be found necessary, but it is expected that any changes will be of a minor nature and will neither alter the general objectives of the project, nor result in material departures from the present findings, predicated on the present plans for the project.

### PARTICIPATION OF FEDERAL AGENCIES

The Bureau of Reclamation would construct the canal system, and other necessary and appurtenant structures, and subject to change, also would operate the system after it is built. The Bureau would negotiate contracts with the water users for the repayment of the reimbursable construction charges.

The War Food Administrator, acting in the stead of the Secretary of Agriculture, has transmitted a letter which is enclosed, indicating his approval of the project and the extent of the proposed participation by the Department of Agriculture. From this letter it will be noted that the War Food Administrator concurs in my belief that the construction would be justifiable as an aid in the production of needed agricultural products.

Services, labor, materials, supplies, equipment, and similar items which may become available through the Selective Service System, Prisoner of War Camps, or other Federal agencies may be utilized under the terms and conditions fixed by such agencies, if, in my opinion, such use would effectively expedite construction of the project.

#### PARTICIPATION OF NON-FEDERAL AGENCIES

Local interests requesting the development of the project indicate that they would form a suitable organization with which to contract with the Government for the repayment of that part of the construction cost which is determined to be reimbursable. The water users benefited by the work of the Department of Agriculture would be required to repay the reimbursable money expended in that work in accordance with the Act. Aid which may be offered by the local interests would be accepted.

#### ESTIMATED COST AND FINANCING PROCEDURE

The cost of the project works which would be undertaken by this Department would be about \$850,000. The project lands also would assume an obligation of about \$220,000, estimated to be the cost of purchasing the required storage capacity in an existing reservoir constructed by the Montana State Water Conservation Board, making a total cost of \$1,070,000 for irrigation facilities. In connection with the development, the Department of Agriculture would undertake activities pursuant to Section 5 of the Act which are estimated to cost \$752,000. The activities of both Departments would be financed with monies appropriated for Water Conservation and Utilization projects. The total project cost is estimated to be \$1,822,000.

It is estimated that the water users could repay \$473,200, of the investment in the works to be built by the Bureau of Reclamation, of which \$220,000 would represent the investment in a storage reservoir heretofore built by the Montana Water Conservation Board, and \$253,200 the investment in additional works to be built. All net costs of the additional works in excess of \$253,200 would, as authorized by the Act, be excluded from the project construction cost and be treated as nonreimbursable.

It is estimated that the water users could repay \$562,600 of the costs of the work proposed by the Department of Agriculture. All costs in excess of this amount would, as authorized by the Act, be treated as nonreimbursable.

Sufficient funds for the initiation of the project have been appropriated and are now available for allotment.

## SIZE OF FARM UNITS

Since the exact size may vary over the project area in accordance with the varying conditions of the project lands, limitations on the various holdings will be established after more complete and final surveys have been made. It now appears that ultimately the proper size holding would be about 160 acres of irrigable land. In this connection, considering the problems attendant on farm operation during the war and the need for the greatest possible production of agricultural products with the available farm labor supply, it may be desirable to determine, within the limits of the Act, that for the duration of the war only, now existing land holdings in single ownership will be regarded as farm units with respect to the limitations on delivery of water even though they exceed in area the normal maximum to be established for farm units on the project.

## FINDINGS, CERTIFICATIONS, RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

1. The proposed project has engineering feasibility.
2. The total estimated cost would be \$1,070,000.
3. The estimated cost which properly could be allocated to irrigation is \$1,070,000.
4. The water users probably could repay \$473,200 in accordance with the requirements of Section 4 of the Act, including a share of the cost of existing works which are to be assumed by them.
5. No part of the estimated costs properly could be allocated to municipal or miscellaneous water supply or power.
6. No part of the estimated costs properly could be allocated to the irrigation of Indian trust and tribal lands.
7. No part of the estimated costs properly could be allocated to flood control.
8. The proposed construction is justifiable as an aid in the production of needed agricultural products.

If you approve the project, it is planned to proceed immediately with matters relating to land acquisition, water rights, and repayment contracts so that the requirements of the statutes may be met as promptly as possible. The project has heretofore been submitted to the War Production Board for clearance for commencement of construction and procurement of materials needed for construction.

On the basis of the foregoing report and findings, I recommend that you approve this project for construction.

Sincerely yours,

(Signed) ABE FORTAS,  
*Acting Secretary of the Interior.*

THE WHITE HOUSE,  
Approved March 22, 1944.

(Signed) FRANKLIN D. ROOSEVELT.

# BLACKFEET (INDIAN) PROJECT<sup>1</sup>

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1908

[Extract from] An act making appropriations for the current and contingent expenses of the Indian Department, for fulfilling treaty stipulations with various Indian tribes, and for other purposes, for the fiscal year ending June thirtieth, nineteen hundred and eight. (Act March 1, 1907, 34 Stat. 1015, 1035, Public Law 154, 59th Cong. 2nd sess.)

\* \* \* That the following sums be, and they are hereby, appropriated, out of any money in the Treasury not otherwise appropriated, for the purpose of paying the current and contingent expenses of the Indian Department, for fulfilling treaty stipulations with various Indian tribes, and in full compensation for all offices the salaries for which are specially provided for herein for the service of the fiscal year ending June thirtieth, nineteen hundred and eight, namely:

\* \* \* \* \*

That so soon as all the lands embraced within the said Blackfeet Indian Reservation shall have been surveyed the Commissioner of Indian Affairs shall cause allotments of the same to be made under the provisions of the allotment laws of the United States to all persons having tribal rights or holding tribal relations and who may rightfully belong on said reservation. That there shall be allotted to each member forty acres of irrigable land and two hundred and eighty acres of additional land valuable only for grazing purposes; or, at the option of the allottee, the entire three hundred and twenty acres may be taken in land valuable only for grazing purposes, respectively, and for constructing irrigating systems to irrigate the aforesaid allotted lands, three hundred thousand dollars, one hundred thousand dollars of which shall be immediately available, the cost of said entire work to be reimbursed from the proceeds of the sale of the lands within said reservations: Provided, That the Indians, and the settlers on the surplus land, in the order named, shall have a preference right for one year from the date of the President's proclamation opening the reservation to settlement, to appropriate the waters of the reservation which shall be filed on and appropriated under the laws of the State

<sup>1</sup> The Secretary on June 28, 1907 instructed the Bureau of Reclamation to undertake the surveys and proceed with the construction work of the project.

of Montana, by the Commissioner of Indian Affairs on behalf of the Indians taking irrigable allotments and by the settlers under the same law. At the expiration of the one year aforesaid the irrigation system constructed and to be constructed shall be operated under the laws of the State of Montana, and the title to such systems as may be constructed under this Act, until otherwise provided by law, shall be in the Secretary of the Interior in trust for the said Indians, and he may sue and be sued in matters relating thereto: And provided further, That the ditches and canals of such irrigation systems may be used, extended, or enlarged for the purpose of conveying water by any person, association, or corporation under and upon compliance with the provisions of the laws of the State of Montana: And provided further, That when said irrigation systems are in successful operation the cost of operating the same shall be equitably apportioned upon the lands irrigated, and, when the Indians have become self-supporting, to the annual charge shall be added an amount sufficient to pay back into the Treasury the cost of the work done in their behalf within thirty years, suitable deduction being made for the amounts received from the disposal of the lands within the reservation aforesaid: Provided, That the right to the use of water acquired under the provisions of this Act shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure and the limit of the right: \* \* \*

DEPARTMENT OF THE INTERIOR,  
OFFICE OF INDIAN AFFAIRS,  
*Washington, May 11, 1907.*

The DIRECTOR OF THE RECLAMATION SERVICE.

SIR: The Indian Appropriation Act of March 1, 1907 (34 Stat. L., 1015-1035), provides for allotments to the Indians of the Blackfeet Reservation in Montana, "And for constructing irrigation systems to irrigate the aforesaid allotted lands \$300,000, \$100,000 of which shall be immediately available, the cost of said entire work to be reimbursed from the proceeds on the sales of the lands within said reservations."

The \$100,000 made immediately available has been brought upon the books of this Office and can be used for the purpose indicated.

In a letter dated May 1, 1907, Capt. J. Z. Dare, Acting Agent in Charge of the Blackfeet Agency, invites attention to this appropriation, and asks to be informed whether or not any

portion of the work can be begun during the fiscal year. He requests this information in view of the necessity of finding employment for the Indians at the earliest date practicable.

It is hardly supposed that any work of construction can be begun during this fiscal year, but your attention is invited to the matter that the preliminary work may be undertaken at once and construction commenced as soon as possible. It is understood that the General Land Office has arranged for the survey on the reservation.

Very respectfully,

(Signed) C. H. FARRABEE,  
*Acting Commissioner.*

DEPARTMENT OF THE INTERIOR,  
CHIEF ENGINEER, INDIAN SERVICE, (IRRIGATION),  
522 BUMILLER BLDG.,  
*Los Angeles, Calif.. June 13, 1907.*

The SECRETARY OF THE INTERIOR,  
*Washington, D. C.*

SIR: I am in receipt of a copy of Indian Office letter of May 11, 1907 addressed to the Director of the Reclamation Service, with reference to irrigation matters on the Blackfeet Reservation, Montana. A similar copy was simultaneously forwarded Supervising Engineer Savage, of Montana, who in a letter which reached me recently states:

The limited allotment available for expenditure on St. Mary's Project work during the calendar year 1907 will make it possible for us to have the services of Mr. C. C. Babb to an extent in connection with the investigation of the proposed work on the Blackfeet Reservation.

In view of the fact that the Reclamation Service has a force of engineers already at work on the Blackfeet Reservation, with substantial office headquarters erected at the Agency, I recommend that it undertake the surveys and investigations, and subsequently superintend the construction of such canals as it is deemed advisable to build at that point for the irrigation of Indian allotments.

Capt. Dare, the Agent at Browning, acted as disbursing officer on the former irrigation work, performed under the supervision of Engineer Robinson of the Indian Service, and I assume that he could continue in such capacity should the work be prosecuted under the supervision of the Reclamation Engineers on the ground.

Either Mr. Hill or I can act as consulting Engineers on the work from time to time, as occasion arises, and render the Reclamation Service such assistance as we can. In this connection Supervising Engineer H. N. Savage of Montana requests in his letter of the 17th. ultimo that I visit the Blackfeet Reservation with him, and aid in outlining the general plan of work to be performed. Since my assistant, Mr. Hill, is now in Montana, I have this day addressed him a letter, directing him to confer with Mr. Savage, and subsequently proceed to the Blackfeet Reservation if it is deemed advisable, it being necessary for me to visit Idaho, Wyoming and Utah points as soon as possible.

I would suggest that the Director of the Reclamation Service be furnished with a copy of my report dated Oct. 25, 1906, pertaining to irrigation matters on the Blackfeet Reservation. The report of Engineer H. F. Robinson, dated Oct. 26, 1905, will also furnish information relative to the Cut Bank Canal, which was extended under his supervision in the year named.

With the work on the Blackfeet Reservation thus arranged, all the large irrigation projects contemplated in the Indian Act for the fiscal year 1908 will be provided for.

Very respectfully,

(Signed) W. H. CODE,  
*Chief Engineer.*

SECRETARY'S OFFICE,  
DEPARTMENT OF THE INTERIOR,  
*Washington, D. C., June 28, 1907.*

The DIRECTOR OF THE RECLAMATION SERVICE.

SIR: I enclose herewith a report by Chief Engineer W. H. Code, dated the 13th instant, in which, for reasons stated, he recommends that the Reclamation Service undertake surveys and investigations and subsequently superintend the construction of such canals as it is deemed advisable to build on the Blackfeet Reservation for the irrigation of Indian allotments.

The Acting Commissioner of Indian Affairs, in his communication of the 26th instant, herewith enclosed, concurs in this recommendation. Kindly advise me if there is any reason why the Reclamation Service may not undertake this work, and if there is none, consider this authority to proceed in accordance with the recommendations of Mr. Code and the Acting Commissioner.

Please return the enclosures with your reply.

Very respectfully,

(Signed) GEORGE W. WOODRUFF,  
*Acting Secretary.*



# BOISE PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Boise, Idaho, February 15, 1905.*

Mr. F. H. NEWELL,  
*Chief Engineer, Reclamation Service,  
U.S.G.S., Washington, D. C.*

DEAR SIR: We, the undersigned, have inspected and considered the plans, estimates, conclusions, and recommendations of Mr. D. W. Ross, District Engineer, regarding the Payette-Boise irrigation project as set forth in report dated February 13, 1905, and submitted for our consideration, copy of which is enclosed herewith. We have discussed the project and considered it with the Directors of the Payette-Boise Water Users' Association and citizens, together with the representatives of the larger canals most concerned. It is our judgment that the initiation of any construction work connected with this project should take into consideration the ultimate reclamation of all the lands susceptible of irrigation from the Boise and Payette Rivers.

Realizing the impossibility of initiating immediate construction upon all the works required to irrigate this total area of 371,000 acres, we have selected for construction the smallest portion of the general project which, while forming a part of the whole, would be complete in itself.

Plans have been developed for taking a supply of water from the Boise River through either the New York canal or the Ridenbaugh canal, enlarged, and with a new location throughout part of their alignment to Indian Creek, down the natural channel of which the water will be permitted to flow for a distance of about 9 miles; thence in a canal along the south edge of Deer Flat to a point where water could be delivered into the proposed Deer Flat reservoir, which has a storage capacity of 127,000 acre-feet. This would bring under irrigation 147,000 acres. Of this area 50,000 acres will have a perfect water supply throughout the entire season from the natural flow of the river supplemented by stored water in Deer Flat reservoir. 40,000 acres would have delivered to it its present water supply which is one of the early priorities from the Boise River, and the balance—57,000 acres of new land above the Pioneer Irrigation District—will re-

ceive a flood water supply up to July, and 20,000 acres of this new land will have a late supply from a number of small storage reservoirs within their area. The cost of these works, including maintenance for ten years, is \$3,331,000, or \$22.66 per acre.

As recommended by the Water Users' Association, it is proposed to assess the cost of works to irrigate the entire 371,000 acres under the Payette-Boise project uniformly. The estimated cost of reclaiming this entire area, including maintenance for ten years and credits allowed for existing works, is \$26.90 per acre. Therefore, this 147,000 acres would return to the reclamation fund \$623,300 in excess of the cost of the works required for their irrigation.

In order that the fund available for the construction of this project may all be used for construction purposes, we recommend that:

1. The landowners under the Ridenbaugh and Settlers canals shall secure title to the same so that the main and distributing canals shall be placed at the disposal of the general project, credits for the systems to be given in connection with their annual payments.

2. The New York canal interests be absorbed into the general project on the basis of the actual value of its existing works, or by condemnation of right of way through such portion of the canal as may be required.

3. The Payette-Boise Water Users' Association acquire all existing rights to damsite and power privilege on the Payette River at Black Rock Canyon.

The Water Users' Association has given assurance that the amount charged to maintenance need not be paid out of the reclamation fund, but that the irrigators will be willing to bear the cost of maintenance of the system; hence the actual outlay from the reclamation fund would be reduced to \$2,596,000.

Conditional upon the fulfillment of the foregoing recommendations, we recommend the transfer of \$1,000,000 from the amount set aside for the Minidoka work to the Payette-Boise project and the allotment of \$1,500,000 additional, making a total of \$2,500,000 for the construction of these works.

Respectfully submitted,

(Signed) F. B. GOODING,  
*Governor of Idaho.*  
JAS. STEPHENSON, Jr.,  
*State Engineer of Idaho.*  
H. N. SAVAGE,  
*Supervising Engineer.*  
A. J. WILEY,  
*Consulting Engineer.*  
D. W. ROSS,  
*District Engineer.*  
H. A. STORRS,  
*Electrical Engineer.*

MARCH 24, 1905.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: During the summer of 1903, preliminary surveys made by the Reclamation Service indicated the feasibility of reclaiming a large body of desert lands in southwestern Idaho in the Payette-Boise valleys. Upon petition by more than 1,200 landowners, representing about 93,000 acres of land in the project, further surveys were ordered made during 1904 for the purpose of determining the character of the necessary works and the cost of constructing the same. Withdrawals were also made under the provisions of the reclamation act. These surveys were finished in November, 1904, and estimates of cost and preliminary plans were made and have recently been considered by a Board of Engineers of the Reclamation Service.

The project provides for the reclamation of about 372,000 acres, 300,000 of which are now in a desert condition. About 71,000 acres are public lands, subject to entry under the conditions of the reclamation act. About 46,000 acres have been entered, subject to the provisions of that act, since the lands were withdrawn. About 60,000 acres belong to the State of Idaho, and the remainder, about 195,000 acres, are in private ownership, held in tracts averaging about 100 acres each.

Ample storage facilities on the headwaters of the Payette River are available and can be developed at reasonable cost. Additional storage on the Boise River and in its valley proper can also be obtained to supplement the normal flow of the streams from which the water for this project is to be furnished.

About 100,000 acres of lands within the limits of the project are already irrigated through individual and community effort and private enterprise; but this development has not been planned on comprehensive lines, and the work contemplated by those interested does not provide for the full development of the natural resources of these valleys. The plans which must necessarily be adopted in order to accomplish the best results are, on account of the magnitude of the undertaking, beyond the reach of community effort, and do not offer an attractive field for the investment of private capital. These plans can only be carried to completion in their entirety with the help of the government.

The estimated cost of the entire system is about \$11,000,000, and the charge to be made for the lands which have now no facilities for irrigation will be about \$30 per acre.

This estimate includes the value of existing works which would be utilized, but for which the government is not required to pay, and also an allowance for necessary expenses for maintenance and operation, leaving about \$8,000,000 to be provided from the reclamation fund for construction and purchase of rights of way.

A water users association has recently been organized and final contracts have been entered into with more than 1,600 land-

owners of the Payette and Boise valleys, representing 155,000 acres of land. This represents about 80 per cent of the lands held in private ownership under the project.

From the present rate at which these contracts are being signed, the remainder of the lands will soon be included. The State of Idaho, by recent act of the Legislature and through its State Land Board, has provided for cooperation with the Reclamation Service; so at the present time the following lands, amounting to 332,000 acres, about 90 per cent of the total area, are either directly or indirectly bound to the project:

	Acres
Lands in private ownership.....	155,000
Public lands subject to entry under the conditions of the reclamation act.....	117,000
State lands .....	60,000
Total .....	<u>332,000</u>

A Project Board, consisting of engineers of the Reclamation Service, met at Boise, Idaho, February 15, 1905, for the consideration of this project, and after discussing the plans with the Governor and the State Engineer, Directors of the Water Users Association, and representatives of the principal irrigation communities, and with the present condition of the reclamation fund in mind, recommended that construction be begun on such portion of the project as would require a comparatively small allotment from the reclamation fund, but which, while forming a part of the whole, would rest upon a sound financial basis, and be complete in itself.

In general, the plan proposed to be carried out is as follows:

(a) The acquisition of various rights of way, among them reservoir sites on Deer Flat and Payette River, to be arranged for in cooperation with the Water Users Association.

(b) The enlarging and extending of one of the upper canals of the valley, in order to fill the Deer Flat Reservoir.

(c) The construction of Deer Flat Reservoir and such distributing system as will provide for the delivery of water to the lands tributary thereto.

Aside from the fact that this project has been found feasible and will provide for the development of one of the most fertile sections in the State, it is important that it should be taken up at once because the local conditions require some prompt action to supplement the present water supply of these valleys, and unless the private lands in Deer Flat are acquired for reservoir purposes, they will become one of the important parts of an irrigated area which will be developed by private enterprise, and the value of the lands would increase so greatly that their use for reservoir purposes would become practically impossible in the future.

It is recommended that this project be taken up along the general lines hereinbefore detailed, and that this office be directed to prepare for construction the particular portion outlined. This is such portion of the project as is contemplated by section 4 of

the reclamation act; namely, such portion or section as it may be practicable to construct and complete as part of the whole project.

The estimated cost of this portion of the work and the necessary rights of way is about \$1,300,000, and approximately 126,000 acres of land will be immediately benefited, some portions of which are now wholly without irrigation.

This amount is available from the reclamation fund, and it is recommended that the same be set aside for the Payette-Boise Project.

Very respectfully,

(Signed) CHARLES D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, March 27, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: I have before me your letter of the 24th instant in which you have set forth the facts concerning the investigations in connection with the Payette-Boise Project, Idaho, under the act of June 17, 1902—32 Stat. 388.

You have stated that the project provides for the reclamation of 372,000 acres of land, 300,000 acres of which are now in a desert condition; that about 71,000 acres are public land, subject to entry under the act mentioned, and that about 46,000 acres have been entered subject to the provisions of that act since the withdrawal of the lands; that about 60,000 acres belong to the State of Idaho, and that the remainder, about 195,000 acres, is now in private ownership, held in tracts averaging about 100 acres each.

Your letter shows that ample storage facilities are available on the headwaters of the Payette River, and that additional storage on the Boise River and its valley proper can also be obtained to supplement the normal flow of the streams from which the water for the project is to be furnished. You have referred also in your letter to the fact that a Water Users' Association has recently been organized in that locality, representing about 155,000 acres of land, and that the State has provided for co-operation with the Reclamation Service.

You have set forth in your letter the plan proposed to be carried out involving the acquisition of various rights of way, enlarging and extending of canals and the construction of the Deer Flat reservoir. In conclusion you have stated that aside from

the fact that the project has been found feasible, it will provide for the development of one of the most fertile sections of the State and that it is important that the project should be begun at once.

You have accordingly recommended that the project be entered into along the lines you have detailed, and that your office be directed to prepare for construction the particular portion of the project outlined; also that \$1,300,000 be set aside for the project.

I have considered the facts and recommendations covered by your letter, and I hereby set aside from the fund mentioned the sum of \$1,300,000 for the Payette-Boise project, Idaho, and direct that you take action with respect to this project along the lines and with respect to that portion of the project covered by your recommendations and suggestions.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

DEPARTMENT OF THE INTERIOR,  
UNITED STATES RECLAMATION SERVICE,  
*Washington, June 26, 1922.*

The SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On the 18th day of November, 1921, the United States entered into a contract with the Emmett Irrigation District in southern Idaho for the construction of a dam on the Payette River at a point known as Black Rock Canyon. This will be a diversion dam to take the place of the long canal built in the canyon and heading about 16 miles above the dam site.

The canal serves a large area of highly developed land including many orchards and other permanent improvements depending upon the water supply furnished by the canal mentioned. A part of the canal in the canyon was cheaply constructed and is in very unsafe location. It involves great trouble and expense for maintenance and its complete breakdown is feared any time. It therefore is important that the dam which is to take its place be completed and placed in service at the earliest possible day.

The contract for the construction of this dam provides for an option for its use on the Boise project for carrying the waters of Payette River into the valley of the Boise River on the North side for which the water supply of the Boise River is not sufficient.

A review of our finances indicates that without stopping or materially curtailing operations already under way it will be

possible to allot for expenditure during the fiscal year ending June 30, 1923 the sum of \$600,000, which is approximately one-half of what will be necessary for the completed work. It is respectfully requested that an allotment from the appropriation for Boise project of \$600,000, be authorized for the construction of the Black Canyon dam.

Very respectfully,

(Signed) A. P. DAVIS,  
*Director.*

Approved June 26, 1922.

(Signed) E. C. FINNEY,  
*First Assistant Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, October 18, 1928.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The act making appropriations for the Interior Department for the fiscal year 1928, approved January 12, 1927, provides \$416,000 for continuation of investigation and beginning construction of the Payette Division of the Boise project, Idaho, and the act making appropriations for the Interior Department for the fiscal year 1929, approved March 7, 1928, provides \$400,000 for continuation of construction of this division.

Section 4 of the act of June 25, 1910 (36 Stat., 835), provides in effect that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat., 388), and acts amendatory thereof or supplementary thereto, shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The feature under consideration for immediate construction as a part of the Payette Division of the Boise project requiring

investigation and report under Subsection B, Section 4, Act of December 5, 1924, *supra*, is discussed in the order presented in that subsection.

The building and operation of the Deadwood reservoir is an intermediate step in the carrying out of the construction of the Payette division of the Boise project, the construction of canals for the irrigation of this division to be delayed until funds therefor are available.

### STORAGE PLAN

A reservoir of 160,000 acre-feet capacity is proposed on the Deadwood River, a tributary of the Payette River, 60 miles northeast of Boise, Idaho. This reservoir will be used to supply additional water for the Black Canyon reservoir, affording a regulated flow for the power plant at Black Canyon, to be used by the Bureau of Reclamation in supplying cheap power for pumping on the Gem Irrigation District and on five other districts, smaller than the Gem, whose development is threatened because of the very heavy cost of pumping, varying from \$7 to \$10 an acre. Under present conditions there is a serious shortage of water for power purposes during the peak of the irrigation season in July and August, and the output of the power plant is greatly reduced during this period. The construction of the Deadwood reservoir will relieve this condition and make 8,000 kilowatts of firm power available throughout the irrigation season. Additional power is also needed for the construction of the Owyhee dam and irrigation works, estimated to cost \$18,000,000. The revenues from the sale of this power are known to be ample to return the entire cost of construction of the reservoir within 40 years. Consequently there is no need of entering into contracts with irrigation districts for the repayment of this cost, or of any other guarantees of solvency.

### ENGINEERING FEATURES

The Deadwood dam will be of arch design, 600 feet long and 160 feet in maximum height, containing 50,000 cubic yards of concrete. The structure will be founded on granite. The Black Canyon diversion dam already constructed is a gravity section concrete structure raising the river level 90 feet and has been successfully operated for over four years.

### CONSTRUCTION COST

The estimated construction cost of the Deadwood reservoir is \$1,200,000, of which \$800,000 has already been appropriated.

### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the Deadwood reservoir is feasible from an engineering and economic standpoint, and I accordingly so find and declare.



PROBABLE RETURN TO RECLAMATION FUND OF COST OF  
CONSTRUCTION.

The next declaration required is that the cost of construction will probably be returned to the reclamation fund.

As stated above, the power revenues will be ample to return the cost of construction within forty years. I accordingly recommend the approval of the construction of the Deadwood reservoir and the issuance of the necessary authority to this Department to make contracts for the construction and to proceed with the work.

Sincerely yours,

(Signed) ROY O. WEST,  
*Secretary.*

Approved: October 19, 1928.

(Signed) CALVIN COOLIDGE,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, November 20, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The original irrigation plan for the development of the Boise project contemplated the construction of an irrigation system to serve the lands now included in the Payette Division.

The division comprises lands in the area between the Boise and Payette Rivers extending westward to the Snake River and is located generally between the cities of Caldwell and Payette, Idaho. The division is bounded on three sides by highly developed irrigated areas and is traversed by two paved highways and one railroad. The lands are well situated for successful irrigation; the soil is excellent and there are no serious drainage problems. The division contains an irrigable area of 47,000 acres, of which 26,000 acres will receive water by gravity flow and the remaining area will be under pumping lifts up to a maximum of 100 feet. The total estimated cost of construction of the irrigation system, including storage, diversion dam, power plant, pumping plants, canals and tunnels, drainage ditches, etc., required to supply water to the entire irrigable area of the division is approximately \$7,500,000. Of this system, the diversion dam has been built in 1923-1924 for joint use with the Emmett Irrigation District, and the power plant was constructed in 1925 to produce power for

pumping on the Owyhee project until the power should be needed on the Payette division.

Under Presidential approval dated October 19, 1928, the Deadwood storage reservoir was constructed in 1929-1930 to supplement the water supply for the power plant, with its cost to be repaid from power revenues. Either this reservoir can be converted to the use of the Payette Division and another source of power secured for pumping on the Owyhee project or another reservoir of similar capacity—for which suitable sites and water supply are available on the Payette River—can be provided for the Payette division. The estimated cost of the remaining work required, not including a reservoir, is approximately \$5,000,000.

Water, now running to waste in the Payette River, is available for direct diversion or storage in sufficient amount for the irrigation of the lands. The lands of the division are included within the boundaries of the Black Canyon Irrigation District, an irrigation district created, organized and existing under the laws of the State of Idaho.

The District has entered into a contract with the United States, dated October 3, 1927, to repay the cost of an irrigation system with a limit of expenditure for irrigation works of \$8,160,000, which cost the District has agreed to pay in thirty-nine annual installments beginning with December 31 after Public Notice by the Secretary of the Interior that water is available for irrigation use.

The Supreme Court of the United States in the Parker Dam decision (United States v. State of Arizona 295 U.S. 174) indicated that Section 4 of the act of June 25, 1910, 36 Stat. 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Payette division of the Boise project is made to you under said statute of 1910 and under Subsection B of Section 4 of the act of December 5, 1924, 43 Stat., 701.

Section 4 of the act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the act of June 17, 1902, 32 Stat., 388, and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

About 29 miles of main canal is required to reach the irrigable lands of the division and this canal follows roughly the location of the existing south side canal of the Emmett Irrigation District so that construction of the new canal can not be continuous and rapid but must be built in sections, part outside of the irrigation

season in order not to interrupt service through the old canal. The allotment of \$1,000,000 now available under the Emergency Relief Appropriation Act of 1935 to begin construction on the canal system for the division is adjusted to the necessary program and will provide for construction of those sections that can be built prior to the end of the irrigation season of 1936.

The good record of the Boise project during the past 25 years, from an agricultural standpoint, justifies the belief that the economic benefits to be derived from the ultimate development of the Payette division, as one of the best divisions of the Boise project, will lead to its completion with appropriations from the Reclamation Fund, in the event further appropriations are not made from P.W.A. funds for the purpose.

The contract for repayment of cost of construction contains such provisions as are necessary to safeguard the interests of settlers against speculation in the unimproved lands of the division.

Surveys have been made, and the land has been classified, and I find that the project is feasible; that the land watered thereby is well adaptable for actual settlement and farm homes; that the land owners benefited by the project will be able from the agricultural produce of the lands irrigated to return the cost of the development and that the project will probably return the cost thereof to the United States.

Construction of the proposed irrigation works will furnish employment to large numbers now unemployed and further the purpose and intent of the Act of Congress of June 16, 1933.

I recommend that the project be approved and that the necessary authority be issued to the Department to make contracts for construction of the project and for repayment of the cost thereof by the lands benefited.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved December 19, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1939

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1939, and for other purposes. (Act May 9, 1938, 52 Stat. 291, 321, Public Law 497, 75th Cong., 3d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the De-

partment of the Interior for the fiscal year ending June 30, 1939, namely:

\* \* \* \* \*

Construction: For continuation of construction of the following projects in not to exceed the following amounts, respectively, to be expended from the Reclamation Fund under the same general conditions and in the same manner and for the same objects of expenditure as specified for projects hereinbefore in this act under the caption "Bureau of Reclamation," and to be reimbursable under the Reclamation law.

\* \* \* \* \*

Boise project, Idaho, Payette division, \$500,000; Twin Springs Dam and Snake River pumping plant, \$750,000.

BUREAU OF RECLAMATION,  
*Washington, June 24, 1940.*

The SECRETARY OF THE INTERIOR.

SIR: During the period from 1904 to 1909 the Bureau of Reclamation constructed the Arrowrock and Deer Flat Reservoirs, distributing canals, and a drainage system for the Boise Project in Idaho of 166,000 acres. Adjacent to this project there is an area of 174,000 acres which has been irrigated for a much longer period than the Federal project. Both areas, amounting to a total of 340,000 acres, have suffered water shortages in recent years.

The engineers of the Bureau of Reclamation have for some time been making investigations of the possibilities of furnishing supplemental water to eliminate these shortages. In 1938 a proposal was submitted which included the construction of the Twin Springs dam and power plant on the Middle Fork of the Boise River and a pumping plant on the Snake River, the latter to furnish water to the lands of the Deer Flat Division of the Federal project. An appropriation of \$750,000 was made available in the 1938 Interior Department appropriation bill for the commencement of construction of this development, the total estimated cost of which is \$11,296,000. Before construction was initiated the Department of Agriculture and the Corps of Engineers, while making flood control surveys, had found that the Anderson Ranch site on the South Fork of the Boise River was more desirable from a flood control standpoint than the Twin Springs site. The three agencies thereupon made a study of the relative merits of the two sites for the purposes of flood control, irrigation, power development, and silt control.

The report of the Bureau engineers on the two developments is

transmitted herewith. Their conclusions are that the more desirable project is the construction of a dam on the South Fork of the Boise River at the Anderson Ranch site and the altering of the outlet works of the existing Arrowrock Dam on the Boise River as a flood control feature. The storage of water in the Anderson Ranch Reservoir will practically eliminate the shortages for the 340,000 acres in the Boise Valley in all years except those similar to 1931. The development is greatly desired by local irrigation interests and would materially improve their economic status. Based on repayment in forty years without interest, the total annual charge to irrigation will amount to \$116,000, which can readily be paid by the irrigators.

The estimated cost of the project is \$13,100,000. In the Interior Department appropriation act for the fiscal year 1941, the Congress provided that the funds previously made available for the Twin Springs development "shall remain available for construction of either or both of the same or such other project works on the Boise River or its tributaries as may be found by the Secretary of the Interior, following current investigations, to be more feasible." This provision makes this money available for the Anderson Ranch Reservoir.

The water studies made by the engineers of the Bureau indicate the desirability of installing a power plant of 20,000-kw. capacity. With this installation, about 104,000,000 kw-hrs. of electrical energy can be generated. A large block of this power, about 14,000,000 kw-hrs., will be required for irrigation pumping in the Boise and Payette Valleys and the Owyhee Project, a development of the Bureau of Reclamation. The power in excess of that needed for irrigation pumping can be absorbed in the surrounding power market area, and the Idaho Power Company has already indicated a desire to purchase it. Owing to the location of the Arrowrock Reservoir down-stream from the Anderson Ranch site, it will be possible to develop the firm power at the Anderson Ranch plant without the loss of run-off during the non-irrigation season.

The Department of Agriculture has made studies of erosion and silting conditions in the Boise Valley from which it is concluded that 30,000 acre-feet of the dead storage space in the proposed reservoir will prevent annual siltation damages amounting to \$23,000.

The Corps of Engineers, War Department, has made a flood control survey of the Boise River Basin. During the progress of the investigations, there was close cooperation between the field staffs of the two agencies. The report of the Division Engineer proposes the construction of the Anderson Ranch Reservoir to the same capacity considered by the Bureau of Reclamation and recommends the same allocations for storage space. A conference between the representatives of the Bureau and the Board of Engineers was held on May 24, 1940, at which time the few small differences in the reports of the two agencies were adjusted.

\* \* \* \* \*

The new repayment contract will be negotiated largely with the same group that is now repaying the cost of the present works.

The operation and maintenance for any new construction will be supplementary to that already in force. In view of this situation there should be no doubt that the Bureau of Reclamation should construct and operate the proposed works.

The benefits to be derived from the construction of the Anderson Ranch Reservoir exceed the annual costs, and the project clearly meets all the requirements of feasibility and authorization under Section 9 of the Reclamation Project Act of 1939. Through the cooperation between the field staffs of the Bureau of Reclamation and the War Department, a satisfactory and fair allocation has been arrived at for flood control purposes. I recommend that the report and a Finding of Feasibility on this project be submitted to the President and to the Congress in compliance with the provisions of the Reclamation Project Act of 1939.

Respectfully,

(Signed) JOHN C. PAGE,  
*Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, June 25, 1940.*

THE PRESIDENT,  
*The White House,*  
*(Through the National Resources Planning Board).*

MY DEAR MR. PRESIDENT: There is transmitted herewith a letter of June 24, 1940, from the Commissioner, Bureau of Reclamation, submitting a report on a multiple-purpose project in the Boise Basin, Idaho.

By reference to the report, it will be noted that it proposes to substitute the Anderson Ranch reservoir for the Twin Springs development. A proposal had been made to build the Twin Springs development, at an estimated cost of \$11,296,000, and an appropriation for commencement of construction was contained in the 1938 Interior Department Appropriation Act. Subsequent investigations by the Corps of Engineers, the Department of Agriculture, and the Bureau of Reclamation indicated that the Anderson Ranch site was more desirable for multiple-purpose uses. The 1941 Interior Department Appropriation Act contains language whereby the appropriation made previously for the Twin Springs development can be used for the Anderson Ranch reservoir. Consequently, funds are now available to commence its construction.

The proposed plan contemplates spending \$13,100,000 for the construction of the Anderson Ranch Dam and Power House on the South Fork of the Boise River and for the making of certain alterations in the outlet works of the existing Arrowrock Dam

on the Boise River. The accomplishment of this work will provide a supplemental water supply for 340,000 acres of irrigated lands in the Boise Valley. The irrigation works for 166,000 acres of this area were constructed several years ago by the Bureau of Reclamation. These works included the Arrowrock Dam and the necessary canals, laterals, and drainage systems. In addition to furnishing supplemental water to the lands in the Boise Valley, the proposed project will provide for the generation of about 104,000,000 kilowatt-hours of firm and secondary electrical energy, and for a large measure of flood control throughout the Boise Valley. The dead storage space in the reservoir will furnish the required silt control and in addition will provide a permanent lake which will conserve fish life and provide recreational facilities.

Through consultation and agreement with the Chief of Engineers, representing the Secretary of War, \$5,050,000 of the cost of constructing the project has been allocated to flood control, with no reimbursement contemplated. The other allocations include \$4,650,000 to irrigation, to be repaid under the Reclamation Law in forty years without interest, and \$3,400,000 to power development, to be repaid through the sale of firm and secondary power. These allocations equal the estimated cost of the project. This is essentially a multiple-purpose project as it is economically infeasible to obtain benefits separately for flood control, irrigation, power or silt control.

I find that the project is feasible from an engineering standpoint, that it will be economically beneficial and that repayment of the reimbursable costs can be anticipated with assurance. It is consequently authorized for construction under the provisions of Section 9 of the Reclamation Project Act of 1939, and I recommend that its construction be started as soon as practicable with the funds already made available.

Unless you have objections, the letter and report will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
Washington, July 8, 1940.

Memorandum for the SECRETARY OF THE INTERIOR.

I have no objection to your transmittal to the Congress of the reports on the "Twin Springs and Anderson Ranch Reservoir

sites—Boise Project, Idaho", submitted with your letter of June 25, 1940.

Although I realize that funds for initiation of construction of the Anderson Ranch project are available for expenditure under the terms of the Interior Department Appropriation Acts, 1938 and 1941, the present demands upon the Federal Treasury for purposes of national defense make it unwise to start a project of that magnitude at this time. I therefore request that you defer indefinitely the initiation of construction of the project.

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
*Washington, July 22, 1940.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: I have received your memorandum of July 8, 1940, in which you state you have no objection to the transmittal to the Congress of the reports on the Twin Springs and Anderson Ranch reservoir sites on the Boise project in Idaho, but request that the initiation of construction of the project be deferred because the present demands on the Federal Treasury for purposes of national defense make it unwise to start a project of its magnitude at this time.

I do believe, however, that I should call your attention to the situation in the Boise Valley. The supplemental water supply to be provided by the proposed development is greatly needed there to prevent crop losses in practically every year. Although the necessity of conserving funds for national defense precludes construction at this time, the Anderson Ranch reservoir should be built as soon as practicable.

When more favorable conditions prevail and the project can be started, much delay in the commencement of actual construction can be avoided by undertaking at this time the exploration of clay, sand and gravel deposits, the acquisition of rights-of-way, the clearing of the reservoir, the preparation of designs for the dam and power plant, the negotiation of repayment contracts and similar preliminary activities. This work could be completed for approximately \$400,000 of the \$750,000 appropriated and I am asking your approval for the expenditure of this amount.

This procedure would eliminate most of the obstacles to actual construction but would not create a commitment for additional funds at the present time. In addition, it would make ready a project on which a large number of men could be immediately em-



ployed if it became necessary on short notice to engage in an expanded program of public works to stabilize employment conditions.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
*Washington, July 30, 1940.*

The Honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: I have your letter of July 22, 1940, asking my approval for the expenditure of approximately \$400,000 of the balance of \$631,000 available for expenditure under the terms of the Interior Department Appropriation Acts, 1939 and 1941, for undertaking preliminary work in the construction of the "Twin Springs and Anderson Ranch Reservoir Sites, Boise project, Idaho."

You suggest that preliminary work done now would save delay in commencing actual construction at a later date, and indicate that there is an urgent need for a supplemental water supply for the Boise Valley.

You may proceed with those features of the preliminary work outlined in your letter, the expenditures therefor not to exceed \$400,000 in the fiscal year 1941. While releasing this amount for expenditure now, it should be understood that no commitment is being made with respect to the approval of an estimate of appropriation to begin actual construction at an early date.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
*Washington, August 12, 1940.*

THE PRESIDENT OF THE SENATE,  
*United States Senate.*

SIR: I am transmitting herewith the Reclamation report on the Anderson Ranch Reservoir, Boise Project, Idaho.

The letter of June 24, 1940 to me, from Commissioner John C. Page of the Bureau of Reclamation, states that, "The benefits to be derived from the construction of the Anderson Ranch Reservoir exceed the annual costs, and the project clearly meets all the requirements of feasibility and authorization under Section 9 of the Reclamation Project Act of 1939."

My letter to the President dated June 25, 1940 stated, "I find that the project is feasible from an engineering standpoint, that it will be economically beneficial and that repayment of the reimbursable costs can be anticipated with assurance. It is consequently authorized for construction under the provisions of Section 9 of the Reclamation Project Act of 1939."

These letters, together with correspondence with the President on the subject of the Anderson Ranch Reservoir, are included in and are a part of the report which is enclosed. The report, therefore, includes the findings and the authorization contemplated in Section 9 of the Reclamation Project Act of 1939 on the Anderson Ranch Reservoir, Boise Project, Idaho.

Very truly yours,

(Signed) A. J. WIRTZ,  
*Acting Secretary of the Interior.*

(This report also was transmitted to the Speaker of the House of Representatives.)

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1942

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1942, and for other purposes. (Act June 28, 1941, 55 Stat. 303, 304, Public Law 136, 77th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1942, namely:

\* \* \* \* \*

Construction: For commencement and continuation of construction, and for general investigations and administrative expenses, of the following projects in not to exceed the following amounts, respectively, to be expended from the Reclamation Fund in the same manner and for the same objects of expenditure as specified for projects hereinbefore in this act under the caption "Bureau of Reclamation", under the heading "Administrative provisions and limitations", but without regard to the amounts of the limitations

therein set forth, all to be reimbursable under the Reclamation law, and to remain available until expended:

\* \* \* \* \*

Boise project, Idaho, Payette division, \$1,500,000: *Provided*, That such part of the storage capacity of the Cascade Reservoir, and the costs thereof, shall be reserved for other irrigation or power developments in and adjacent to the Boise project, as shall be determined by the Secretary of the Interior.

### PROVISIONS OF THIRD SUPPLEMENTAL NATIONAL DEFENSE APPROPRIATION ACT, 1942

[Extracts from] An act making supplemental appropriations for the national defense for the fiscal years ending June 30, 1942, and June 30, 1943, and for other purposes. (Act December 17, 1941, 55 Stat. 810, 826, 827, Public Law 353, 77th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the national defense for the fiscal years ending June 30, 1942, and June 30, 1943, and for other purposes, namely:

\* \* \* \* \*

General Fund, construction: For continuation of construction of the following projects in not to exceed the following amounts, respectively, to be expended from the general fund of the Treasury in the same manner and for the same objects as specified for projects in the Interior Department Appropriation Act, 1942, under the caption "Bureau of Reclamation," fiscal year 1942, to remain available until expended, and to be reimbursable under Reclamation law:

\* \* \* \* \*

Boise project, Idaho (Anderson Ranch), \$2,500,000.

# BOULDER CANYON PROJECT<sup>1</sup>

## REPORT OF COLORADO RIVER BOARD

[Extracts from] Report of Colorado River Board on the Boulder Canyon Project to the Secretary of the Interior. Denver, Colorado, November 24, 1928.

The Board of Engineers and Geologists appointed in accordance with Resolution No. 65, Seventieth Congress, approved May 29, 1928, has the honor to submit the following report as to the matters enumerated in said Resolution, that were to be reported on prior to December 1st, 1928.

The duties of the Board, insofar as this report is concerned, are:

To examine the proposed site of the dam to be constructed under the provisions of H. R. 5773, Seventieth Congress, first session, and review the plans and estimates made therefor, and to advise him (the Secretary of the Interior) prior to December 1, 1928, as to matters affecting the safety, the economic and engineering feasibility, and adequacy of the proposed structure and incidental works.

The structures proposed in H. R. 5773, Seventieth Congress, are:

A dam and incidental works in the main stream of the Colorado River at Black Canyon or Boulder Canyon adequate to create a storage reservoir of a capacity of not less than twenty million acre-feet of water and a main canal and appurtenant structures located entirely within the United States connecting the Laguna Dam with the Imperial and Coachella Valleys in California;

The "incidental works" at the dam are construed to be a powerhouse with its equipment of turbines, generators and all appurtenant appliances needed in the generation and control of electric energy.

The "appurtenant structures" for the main canal are construed to be a higher dam at Laguna, an enlargement of the headworks

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<sup>1</sup> The *Boulder Canyon Project* was declared feasible from an engineering standpoint by the Colorado River Board in its report of November 24, 1928, wherein the Board confirmed the findings of the Bureau of Reclamation, concurred in the selection of the dam site, and approved the plans. The project was authorized by the Boulder Canyon Project Act, December 21, 1928.

and desilting basin, together with the necessary flumes, bridges, culverts and other incidental structures along the line of the canal.

### THE COLORADO RIVER

The Colorado River, one of the large rivers of the country, drains an area of about 244,000 square miles and has a total length from source to mouth of about 1,700 miles.

Its total fall is over 7,500 feet, or an average fall of about 4.5 feet per mile. The average rainfall on the drainage area is about 10 inches, over thousands of square miles less than 5 inches, and the average annual run-off is less than  $1\frac{1}{2}$  inches. Its main flow is derived from the melting of snow on the mountains of the upper basin. The principal characteristics of its flow are low waters during the autumn and winter months, with a normal flood from the melting snows, usually beginning late in April, reaching its maximum in June, and ending by the middle of August. This flow is modified and intensified by torrential floods of short duration, which come in general from its southern tributaries, and may occur during almost any month of the spring, fall or winter. Its flood flows afford by far the greater quantity of water produced by the stream, and must be conserved and impounded in order to be successfully utilized for water supply and power production. Floods of 200,000 second-feet are not unusual, and much larger ones have occurred.

### ENGINEERING FEASIBILITY

The engineering feasibility of the proposed dam across the main stream of the Colorado River, at Black Canyon or Boulder Canyon, is basic.

#### Selection of Site

The Board examined both sites in question, studied the available data concerning them, the geological formations surrounding them and the seismic history of the region. Conclusions concerning these damsites are embodied in the following statement:

Boulder Canyon Site \* \* \*

Black Canyon Site \* \* \*

Comparison of the Two Sites \* \* \*

There is no doubt whatever but that the rock formations of this site are competent to carry safely the heavy load and abutment thrusts contemplated. It is well adapted to making a tight seal and for opposing water seepage and circulation under and around the ends of the dam. It insures successful tunneling, and, so far as the rock is concerned, the general safety and permanence of the proposed structures.

The Board is of the opinion that the Black Canyon site is suitable for the proposed dam, and is preferable to that of the Boulder Canyon.

## Danger from Earthquakes and Deformation

In former geologic times this district was subjected repeatedly to volcanism and deformation. These events must have been accompanied by earthquakes. Such evidence as there is, both to be observed in the field and to be gathered from records, indicates that these geological activities ceased long ago and that the region has been virtually undisturbed for a very long time. The district is recognized as having comparative freedom from present-day earth movements, and the conclusion is that danger from local earthquakes of enough violence to threaten a properly constructed dam in Black Canyon, is negligible.

## REVIEW OF PLANS AND ESTIMATES

### The Dam and Incidental Works

The Board is of the opinion that it is feasible from an engineering standpoint to build a dam across the Colorado River at Black Canyon that will safely impound water to an elevation of 550 feet above low water. The cost, however, will be greater than that contemplated in the project authorized in H. R. 5773.

### The Dam

The dam proposed by the Bureau of Reclamation and assumed to be the one referred to in H. R. 5773, is of the gravity type, curved in plan, with allowable stresses as high as 40 tons per square foot.

It is the opinion of the Board that a dam of the gravity type is suitable for the site in question, and that such a dam built across Black Canyon would be safe, provided the maximum stresses allowed do not exceed those adopted in standard practice.

The proposed dam would be by far the highest yet constructed and would impound 26,000,000 acre feet of water. If it should fail, the flood created would probably destroy Needles, Topock, Parker, Blythe, Yuma, and permanently destroy the levees of the Imperial District, creating a channel into Salton Sea which would probably be so deep that it would be impracticable to reestablish the Colorado River in its normal course. To avoid such possibilities the proposed dam should be constructed on conservative if not ultra-conservative lines. \* \* \*

### Permanent Spillway \* \* \*

A permanent spillway utilizing the increased capacity of the diversion tunnels provided in the revised plans will make it practicable to prevent any expected flood from overtopping the dam.

## Excavation for the Main Dam \* \* \*

It is the judgment of the Board that it is feasible to make the required excavation for the permanent dam but it is their opinion that plans and estimates of cost should include provision for the control and handling of a considerable volume of water.

## The Power Plant

While a power-house must be fitted to a particular site and its equipment must be designed and selected for the particular conditions which obtain at such site, the entire installation will nevertheless be largely standard, and offers no particular difficulties.

The Board is of the opinion that the plans proposed are feasible from an engineering standpoint. Questions of cost will be considered in another part of the report entitled "Estimates."

\* \* \* \* \*

## ADEQUACY OF PROPOSED STRUCTURES

A dam of 550 feet above low water, across the Colorado River at Black Canyon, impounding 26,000,000 acre feet of water, will be adequate, in the opinion of the Board, to so regulate the flow of the lower Colorado as to control ordinary floods; to improve the present navigation possibilities; and to store and deliver the available water for reclamation of public lands and for other beneficial uses within the United States.

\* \* \* \* \*

The adequacy of the proposed hydro-electric plant to generate sufficient power to make the project authorized a self-supporting and financially solvent undertaking, is treated in the section on Economic Feasibility.

\* \* \* \* \*

## ECONOMIC FEASIBILITY

The time available for the investigation in preparation of this report has not been sufficient to permit the Board to go into all phases of this subject in the detail necessary to fix its findings with the degree of exactness which might otherwise be practicable.

The Board believes, however, that it has been able to review the available data with sufficient thoroughness to warrant the conclusions expressed in this report.

\* \* \* \* \*

Based on the foregoing and the shortage of power which will occur at low flow, the Board is of the opinion that if the Boulder Canyon Project is completed and put in operation, carrying as it

does the costs of flood protection works and the All American Canal, it will be impossible to meet operation, maintenance, interest and a sufficient sinking fund to retire the cost of the project within a 50-year period.

4. It is obvious that the power which can be generated from Boulder Dam is a valuable resource. If the income from storage can be reasonably increased and the capital investment reduced by the cost of the All American Canal together with a reduction for or a part of the cost properly chargeable to flood protection, it would be possible to amortize the remaining cost with the income from power.

(Signed) COLORADO RIVER BOARD,  
MAJ. GEN. WILLIAM L. SIBERT,  
*Chairman.*

CHARLES P. BERKEY.  
DANIEL W. MEAD.  
WARREN J. MEAD.  
ROBERT RIDGWAY.

### CONSTITUTIONALITY OF BOULDER CANYON PROJECT ACT UPHELD

In *Arizona v. California et al.*, decided May 18, 1931, the Boulder Canyon project act authorizing the building of a dam by the United States across the Colorado River, an interstate and international stream, was held by the Supreme Court to be constitutional, the act reciting (sec. 1) that a purpose of the law was to improve navigation. The court took judicial notice that the river had been navigable south of Black Canyon. The statutes of Arizona (Arizona Laws, 1929, ch. 102, secs. 1-4) prohibited the erection of dams by the United States wholly or partly within the State, except after approval of plans by the Arizona State engineer. It was held that the United States may perform its functions without conforming to the police regulations of a State. The court stated that, since the act is found to be constitutional on other grounds, it is not necessary to decide whether the construction of the dam by the United States might have been supported under the power to irrigate public lands of the United States, to regulate and prevent floods on an interstate stream, to conserve and apportion the waters thereof among the States entitled thereto, or to fulfill international obligations. (*Arizona v. California et al.*, 283 U. S. 423, 51 Sup. Ct. 522, 75 L. Ed. 1154.)



# BUFFALO RAPIDS PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, June 16, 1937.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report on the Glendive unit of the Buffalo Rapids Reclamation project in the State of Montana is made to you under the provisions of Section 4 of the act of June 25, 1910, (36 Stat. 835).

This section of the Act provides in effect that after the date of said Act, no irrigation project to be constructed under the act of June 17, 1902, (32 Stat. 388) and Acts amendatory thereof or supplementary thereto, shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, (43 Stat. 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The Buffalo Rapids project contemplates the irrigation of several tracts of land in Montana on both sides of the Yellowstone River above the Lower Yellowstone project of the Bureau of Reclamation. The Glendive unit is the farthest down stream of these tracts, and is the one now proposed for construction. The plan of

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<sup>1</sup> The *First Division* of the Buffalo Rapids Project (The Glendive Unit and Extension constitute the First Division). The *Glendive Unit* was initiated under the provisions of the Emergency Relief Appropriation Act of 1937. The *Glendive Extension* was found feasible under the terms of the Water Conservation and Utilization Act of August 11, 1939, as amended.

The *Second Division* was found feasible under the terms of the Water Conservation and Utilization Act of August 11, 1939, as amended.

The *Third Division* was authorized as part of the Missouri River Basin Project under the provisions of the Flood Control Acts of 1944 and 1946, but was renamed Sadie Flat, Marsh and Haley subunits of the Yellowstone Pumping unit.

irrigation for the Glendive unit is to pump water from the Yellowstone River to a canal and lateral system which will convey the water to 17,000 acres of irrigable land in a strip of 2 miles average width along the northwest bank of the Yellowstone, extending from Glendive, Montana, up the river about 28 miles.

### WATER SUPPLY

After a study of the local precipitation records and the requirements for irrigation on the nearby Lower Yellowstone project, it is estimated that the required annual pumpage for the Buffalo Rapids project will be 3 acre feet per acre on the average with a maximum of 4 acre feet per acre in the driest years. A study of runoff records of the Yellowstone River indicates that the remaining surplus after by-passing the full demand for the Lower Yellowstone project, the lowest project on the river, will be sufficient for the entire Buffalo Rapids project, and more than ample for the Glendive unit.

### ENGINEERING FEATURES AND CONSTRUCTION COSTS

The principal construction features for the Glendive unit are as follows:

(1) An electrically operated pumping plant situated on the northwest bank of the Yellowstone River,  $2\frac{1}{2}$  miles northeast of Fallon, Montana. The plant will be equipped with 2 units of 125 second feet each. Power will be supplied initially, at least, by the Montana-Dakota Power Company, at a rate of 4 mills per kilowatt hour.

(2) A discharge line of 68-inch diameter steel pipe to convey the water from the pumping plant through a lift of 132 feet and for a length of 3,100 feet to the main canal.

(3) A main canal of 500 second feet initial capacity 32 miles in length extending to Upper Seven-Mile Creek, west of Glendive. The canal is to be constructed with excess capacity so that additional lands downstream from Glendive may be irrigated by the addition of pumping units and a second discharge line when it is found desirable to increase the irrigated area of the Glendive unit. Practically all excavation for the canal will be in earth and little or no lining will be required. Canal structures consist essentially of small wash-crossings.

(4) Laterals of short length and small capacity, and

(5) A drainage system which will need to be started shortly after water is delivered and the construction of which may be extended over a period of years until all of the unit is under irrigation.

The estimated costs of construction are as follows:

Pumping plant of 250 second feet capacity.....	\$275,000
Discharge line .....	125,000
Main canal .....	376,000
Laterals .....	204,000
Priming and puddling canals, commencing operations.....	100,000
Engineering, overhead, contingencies, and miscellaneous.....	270,000
Drainage .....	255,000
Total .....	1,605,000

This total also may be divided into an estimated amount of \$626,000 for materials, equipment and freight; \$829,000 for local labor; and \$150,000 for superintendence, and technical and clerical aid.

### LAND PRICES

The total 17,000 acres of land are privately owned. The rights of way which must be secured are not included in the estimates of costs given above. It is believed desirable that the repayment contract with the irrigation district shall contain a stipulation that as a condition precedent to construction, the required rights of way will be furnished without cost to the United States. The contract also should provide for appraisal of lands on the basis of value without irrigation, and for the sale of holdings in excess of the area (not exceeding 160 acres) required for the support of a family, to new settlers at or below the appraised value.

### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land comprised in the 17,000 acres of irrigation lands is of good fertility. Rough land and poor soils have been eliminated. The land can readily be prepared for the effective application of water. If properly prepared for irrigation and properly cultivated, good yields of all crops grown in this locality are assured. With care in the selection of new settlers and farms suitably improved and equipped, success in farming may be anticipated.

### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

A finding is required that the cost of construction will probably be returned to the Reclamation Fund. This is interpreted to mean that it will be returned within a maximum period fixed by Reclamation Law which is 40 years from the time public notice that the works are completed is issued by the Secretary. Due to the emergency existing in this region, it is proposed in lieu of the usual procedure of constructing the project by contract, with expenditures wholly reimbursable, that this project will, to a large degree, be constructed by force account with non-reimbursable funds, these funds being provided as a Federal grant for relief purposes.

It is estimated that the cost of pumping and of operations and maintenance of project will be approximately \$3 per acre per annum, assuming a power charge of 4 mills per kilowatt hour. From the experience of the Bureau of Reclamation on projects where weather, crop, and market conditions are similar, it is believed that a charge greatly in excess of \$4 per acre per annum will be burdensome to the landowners. The construction charge repayment, therefore, should be held at a figure not greatly in excess of \$1 per acre per annum.

It is proposed that the amount spent for local labor, estimated

at \$829,000 be non-reimbursable and that the remaining \$776,000 be reimbursable under Reclamation Law, based on a 40 year repayment program. The annual construction repayment charge would be \$1.14 per acre or a total of \$4.14 per acre per annum for pumping, operation and maintenance, and repayment. These lands should be capable of making this payment.

#### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering standpoint and is economically feasible on the basis of repayment of \$776,000 as set out in the preceding paragraph. I accordingly so find and declare.

The section of Montana of which the project is a part lies in the semi-arid region which has suffered from a persistent drought over a number of years with an exceptional impairment of agricultural activities and attendant reduction in the number of livestock. The region is faced with general abandonment of farms and homes unless agriculture is bolstered by irrigation. Because of the urgent need of providing a water supply for these lands, I recommend that construction of the Glendive unit of the Buffalo Rapids Project be approved, that an adequate allotment of relief funds be provided, and that construction be started at an early date.

Sincerely yours,

(Signed) CHARLES WEST,  
*Acting Secretary of the Interior.*

Approved September 27, 1937.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, October 2, 1939.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contains an item of \$5,000,000 from which allocations may be made by you:

For construction in addition to labor and materials to be supplied by the Works Progress Administration, of Water Conservation and Utilization proj-

ects in the Great Plains and arid and semiarid areas of the United States,

All expenditures from this appropriation are to be reimbursable and expenditures from Work Projects Administration funds are to be subject to such provisions with respect to reimbursability as the President may determine. Hereinafter the item in the appropriation bill will be referred to as the "1940 Water Conservation Appropriation."

The Bureau of Reclamation is completing construction of the First Division, commonly termed the Glendive Unit, of the Buffalo Rapids project in Montana. The lands of this division are located on the north side of the Yellowstone River, southwest of the city of Glendive. Construction of works for the additional tracts of land on the project may be undertaken economically and efficiently at this time while a qualified Federal organization is available. Furthermore, construction of this type of project comes within the intent of the appropriation item mentioned in the first paragraph and is in accord with the recommendations of the Northern Great Plains Committee. I recommend, therefore, that the Second Division of the Buffalo Rapids project be built in accordance with the provisions of the 1940 Water Conservation appropriation item.

The lands of the division lie in three tracts near the towns of Shirley, Terry, and Fallon, on the south side of the Yellowstone River in Custer, Prairie, and Dawson Counties, Montana. The area to be irrigated contains 9,800 acres, of which 5,300 are near Shirley, 1,000 acres near Terry, and 3,500 acres near Fallon. Water for irrigation will be obtained from the Yellowstone River, raised by electrically driven pumps an average height of 70 feet to the project canals and conveyed from them to the farm lands by canals and farm laterals. Power for pumping is to be obtained from the plant to be installed at Fort Peck Dam and delivered over transmission lines, the greater number of which are already built. Land development, including the construction of farm laterals and rough land leveling, will be undertaken as a part of the project construction.

The estimated cost of constructing the division is \$1,450,000. The experience of the Bureau of Reclamation on projects which are similarly situated indicates that the water users will be able to repay \$600,000 of this amount over a period of forty years, in addition to carrying the annual costs of operation and maintenance. Of this amount, \$550,000 should be obtained from the 1940 Water Conservation Appropriation. The remaining amount of \$900,000 required to construct the division is expected to be provided by the Work Projects Administration. A tabulation is attached in which is shown a tentative break-down of expenditures from the two funds. The estimate of expenditures from Work Projects Administration funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to the fiscal year 1940. The efficiency with which the work can be constructed under the new Work

Projects Administration is unknown. Therefore, the estimate of Work Projects Administration funds required may need revision at some later date. The time required for the construction of the project will depend upon the available relief labor and may extend to two or three years.

Forage and small grains, for the support of the livestock industry, will be the principal crops. Accessibility to markets is provided by highly improved highways and the main lines of the Northern Pacific and of the Chicago, Milwaukee, St. Paul and Pacific Railroads which pass through the entire length of the division. It is believed the water users will be able to meet the annual costs for operation and maintenance and, in addition, to pay an amount per acre annully towards construction, which will effect repayment of expenditures from the 1940 Water Conservation Appropriation. An irrigation district or some other form of organization will be formed to contract for the collection of construction charges and the operation of the division upon completion.

Settlement will be guided and education will be given in irrigation procedure. The control of lands in excess of those required by the present residents will be obtained by special option agreement, insofar as possible, or by similar plan, in order to settle at least a part of the unit with destitute drouth-stricken farmers. A development period of several years may be necessary before the division can assume the repayment burden.

I recommend that the construction of the Second Division be conducted by the Bureau of Reclamation; that the supervision of land development and the arrangements for settlement, repayment, and project operations be made by the bureaus of the Department of Agriculture and that the National Resources Planning Board act in a planning and coordinating capacity to assist in bringing construction to a successful conclusion.

I recommend that an allocation of \$550,000 from the 1940 Water Conservation appropriation be made to the Department of the Interior, Bureau of Reclamation, to assist in the construction of the division; that the Work Projects Administration be requested to give earnest consideration to the project applications which will be filed by the Bureau of Reclamation to obtain the remaining \$900,000 needed for the construction of the Second Division of the Buffalo Rapids project.

The Bureau of Reclamation will reimburse the Department of Agriculture and the National Resources Planning Board for all necessary services provided by these two agencies in connection with the construction of the division, either by transfers or advances of funds made available to the Bureau of Reclamation. Letters containing comments of the Department of Agriculture and the Work Projects Administration are enclosed.

Sincerely yours,

(Signed) E. K. BURLEW,  
*Acting Secretary of the Interior.*

Approved October 11, 1939.

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
*Washington, April 10, 1940.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act of 1940 contains the following item, hereinafter called the "1940 Water Conservation Authority":

For construction, in addition to labor and materials to be supplied by the Works Progress Administration, of water conservation and utilization projects, \* \* \* in the Great Plains and arid and semiarid areas of the United States, \* \* \* \$5,000,000 to be allocated by the President, \* \* \* and to be reimbursed to the United States by the water users \* \* \* : *Provided*, That expenditures from Works Progress Administration funds shall be subject to such provisions with respect to reimbursability as the President may determine.

There is presented herein, for your approval, a proposal to complete and to bring the operation of the First Division (formerly termed the Glendive Unit) of the Buffalo Rapids Irrigation Project in Montana under the provisions of the 1940 Water Conservation Authority. This Division is now under construction with funds allocated from the Emergency Relief Appropriation Act of 1937.

The First Division is a project of the type contemplated for construction under the 1940 Water Conservation Authority. The lands of the Division, comprising 15,500 acres, are located in Dawson County on the north bank of the Yellowstone River. They extend 25 miles upstream from Glendive, nearly to Fallon, in a strip from one to two miles wide, and are situated immediately across the river from the lands of the Second Division, for which an allocation has been made from the appropriation mentioned above.

Water for irrigating the land will be obtained from the Yellowstone River, pumped to a height of 100 feet above the river, and then conveyed to the farms through 32 miles of canals and a system of laterals and farm ditches. Electrical energy for pumping will be obtained at first from the Montana Dakota Power Company and later perhaps from the plant to be installed at Fort Peck Dam.

The lands are of good fertility and are well adapted to irrigation. The principal crops will be forage and small grains to supplement the livestock industry. U. S. Highway No. 10 traverses the entire length of the project and the main line of the Northern Pacific and of the Chicago, Milwaukee and St. Paul Railroads pass through the nearby towns of Glendive and Fallon, thus providing access to markets.

Construction of the Division was started by the Bureau of Rec-

lamation in 1937 with funds allocated from the Emergency Relief Appropriation Act of that year, and that work is now approximately 80% completed. An area of 3,000 acres in the so-called "Upper Glendive-Fallon" district had been omitted from the project due to an unpaid bond issue outstanding against it. The Farm Security Administration has recently indicated that it can obtain control of these lands, and the revised estimate for construction includes a lateral system for this district.

It is desirable to bring the Division under the provisions of the Great Plains program for the following reasons:

1. Construction has been conducted in large measure with relief forces rather than by the contract methods ordinarily employed by the Bureau of Reclamation;

2. Only a portion of the funds used in construction are reimbursable, instead of being entirely reimbursable as are the funds for other Reclamation projects; and

3. The Second Division of the project, separated from the First Division only by the Yellowstone River, is to be constructed and developed under the Great Plains program and, if the two divisions are operated by separate agencies, considerable duplication of effort will result and much confusion and many difficulties will arise through the enforcement of different repayment measures and rates.

4. Construction of the First Division can be completed with forces now available, and during the time the preliminary work for the Second Division is under way.

The cost of materials and supplies has increased considerably since the original estimates were prepared. An additional sum of \$230,000 is needed to complete construction, to build a lateral system for the additional 3,000 acres, to provide drainage facilities needed in the first few years, and to furnish some funds for operation and maintenance during construction. The drainage cost is difficult to determine and the above estimate may have to be increased some time in the future as the project reaches its full development. The additional amount should not exceed \$100,000. The participation of the Department of Agriculture will require expenditures estimated at \$330,000 for rough leveling, construction of farm ditches, settlement, and related features.

It will be difficult for the landowners to pay construction charges greatly in excess of those contemplated for the Second Division, particularly since the pumping lift for the First Division exceeds that of the other Division, thus increasing pumping costs. It is believed equitable to charge the water users approximately the same rate per acre on both divisions. This will require some reduction in the reimbursable portion of the Emergency Relief Appropriation funds heretofore allocated.

Analyses of these factors are shown on two tabulations which are attached. It will be noted from Table No. 1 that \$560,000 is needed at this time, of which \$330,000 is considered reimbursable and is expected to be obtained from the 1940 Water Conservation Authority, while \$230,000 is non-reimbursable and is planned to be furnished by the Work Projects Administration. Table No. 2 explains the reduction in the reimbursable portion of the present allotment to maintain the same construction charge per acre for



the two divisions. The estimated charge per acre for the Second Division, which forms the basis for some of the calculations in this table, is taken from the previous presentation to you of the Second Division, which you approved on October 11, 1939. If it is possible to make a saving in the cost of constructing the Second Division, the calculations in the table would consequently be changed. For this reason, the figures in the tabulation should not be considered final, and the determination of the charges to be levied against the First Division should await the completion of construction of both divisions.

The experience of the Bureau of Reclamation on projects which are similarly situated indicates that the water users will probably be able to repay construction charges of \$620,000 over a period of forty years, and the Department of Agriculture has stated that the development charges of \$210,000 can readily be repaid in the same period. These charges, amounting to \$830,000, are in addition to those required for maintenance and operation, including the costs of electrical energy.

I recommend that the First Division of the Buffalo Rapids Project be completed and operated under the provisions of the 1940 Water Conservation Authority; that the Bureau of Reclamation continue to act as the construction agency; that the bureaus of the Department of Agriculture conduct the land development program and the arrangement for settlement, repayment, and project operation; and that the National Resources Planning Board provide assistance in the planning and coordinating fields.

I recommend that an allocation of \$330,000 from the 1940 Water Conservation Authority be made to the Department of the Interior, Bureau of Reclamation, and that the Work Projects Administration be requested to give prompt consideration to the project application which will be filed by the Bureau of Reclamation to secure the remaining \$230,000 needed for the Division.

The Department of Agriculture and the National Resources Planning Board will be reimbursed for all services connected with the construction of the Division by transfers or advances from the funds made available to the Department of the Interior, Bureau of Reclamation, for construction of the Division. Letters containing the comments of the Department of Agriculture and of the Work Projects Administration are enclosed.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved May 15, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
Washington, April 10, 1940.

THE PRESIDENT,  
*The White House,*  
(Through the Bureau of the Budget).

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contains an appropriation of \$5,000,000 from which allocations may be made by you:

For construction, in addition to labor and materials to be supplied by the Works Progress Administration, of water conservation and utilization projects, \* \* \* in the Great Plains and arid and semi-arid areas of the United States, \* \* \*

All expenditures from the appropriation, and as much of the expenditures from the Work Projects Administration fund as the President determines, are to be considered reimbursable. Hereinafter the appropriation item will be termed the "1940 Water Conservation Appropriation."

You approved the inclusion of the Second Division of the Buffalo Rapids Project in the Great Plains program and its construction under the provisions of the appropriation item mentioned above on October 11, 1939. Since that time the engineers of the Bureau of Reclamation have completed detailed surveys of the division which indicate that certain of the engineering features should be revised and that an additional 1,800 acres should be added to the project area, thus increasing the area from 9,800 acres to 11,600 acres. These revisions have increased the estimated cost of the project from \$1,450,000 to \$1,840,000. It is, therefore, considered necessary to resubmit the project proposal to you.

A general description of the location of the lands, the type of crops to be raised, and the transportation facilities available were contained in the previous submission and will not be restated. As now constituted, the lands of the division lie in three tracts near the towns of Shirley, Terry, and Fallon on the south side of the Yellowstone River in Custer, Prairie, and Dawson Counties, Montana. The area to be irrigated contains 11,600 acres of which 5,300 acres are near Shirley, 2,800 acres near Terry, and 3,500 acres near Fallon. Water for irrigation will be obtained from the Yellowstone River, raised by electrically driven pumps to the project canals, and thence conveyed to the farm lands by the canal and lateral distribution system. Power for pumping is planned to be obtained from the plant to be installed at Fort Peck Dam and will be delivered over transmission lines, the greater number of which are already built. Construction will include the digging of farm ditches and necessary rough land leveling.

A study is being made of the most desirable size of farm units, and the large holdings will be subdivided to adequate sized units before they are permitted to receive water. Also, water will be de-

livered to tenant operated lands only if conditions are such as to insure the best use of the land and interests of the tenant. The control of lands in excess of those required by the present residents will be obtained either through a contract with an irrigation district providing for the sale of excess holdings, or through the purchase of the large holdings with funds obtained from sources other than the water conservation appropriation. A development period of several years may be necessary before the project can assume the repayment burden.

The estimated cost of construction, including the building of all irrigation structures, and the leveling of the rough lands is \$1,840,000. Of this amount, \$740,000 is considered reimbursable and will be expended primarily for administration, supervision, materials, supplies, and the acquisition of rights of way. This latter amount should be obtained from the 1940 Water Conservation Appropriation. The balance, or \$1,100,000, is not expected to be repaid and is the estimated expenditure for labor, materials, and incidental costs from funds to be obtained from the Work Projects Administration. A tabulation is attached in which is shown a tentative breakdown of expenditures from the two funds.

The time required for the construction of the project will depend upon the available relief labor and may extend to two or three years. The estimate of expenditures of Work Projects Administration funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to fiscal year 1940. The efficiency with which the work can be constructed under other regulations is unknown. Therefore, the estimate of the funds required from the Work Projects Administration may need revision at some later date.

I recommend that the Bureau of Reclamation undertake the construction of the Second Division; that the Department of Agriculture conduct the land development program and the arrangements for settlement, land use repayment, and project operations; and that the National Resources Planning Board assist in the planning and coordinating field.

I recommend that an additional allotment of \$190,000 from the 1940 Water Conservation appropriation be made to the Department of the Interior, Bureau of Reclamation. This amount added to the allotment of \$550,000, which you approved on October 11, 1939, would make a total allocation of \$740,000 from the 1940 Water Conservation appropriation for the Second Division.

I also recommend that the Work Projects Administration be requested to give earnest consideration to the project application, which will be filed by the Bureau of Reclamation to obtain the remaining \$1,100,000 which will be needed for construction of the Second Division.

The Bureau of Reclamation will reimburse the Department of Agriculture for all services provided in connection with the construction of the project, through transfers or advances from the funds made available to the Bureau of Reclamation. Letters containing the comments of the Department of Agriculture and the Work Projects Administration are enclosed.

It is contemplated that actual construction will not be undertaken until the Department of Agriculture has made sufficient progress either in its efforts to obtain control of the large holdings at prices which do not exceed appraised valuations, or in its negotiations with the water users for the reduction of large holdings, which will insure the successful operation of the project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved May 15, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
*Washington, May 6, 1941.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: On October 11, 1939, you approved an allotment of funds from the \$5,000,000 appropriation for "Water Conservation and Utility Projects," contained in the Interior Department Appropriation Act of 1940, for construction of the Second Division of the Buffalo Rapids irrigation project in Montana.

The Second Division contains 11,600 acres of land along the Yellowstone River, near the towns of Shirley, Terry, and Fallon. These are to be irrigated through the construction of pumping plants, canals, laterals, and drains by the Bureau of Reclamation of the Department of the Interior, and are to be developed and settled by the Farm Security Administration of the Department of Agriculture. The acquisition of agricultural lands is considered to be an important part of the development plans for, as stated in the report to you of the Northern Great Plains Committee dated October 1938, "unless a substantial portion of the lands to be benefited by a project are under Federal ownership or control . . . the benefits which would accrue from the program to destitute farm families in need of a permanent source of livelihood through relocation would be lost in large measure."

On other projects being developed under the provisions of the act mentioned in the first paragraph of this letter, the Department of Agriculture has had funds available from other sources

for the acquisition of the lands. However, the funds available for use in the State of Montana are insufficient to purchase the lands on the Second Division. The Secretary of Agriculture has therefore requested that an allotment of \$120,000 be made to him from the appropriation for "Water Conservation and Utility Projects" to be used for the acquisition of agricultural lands within the division's boundaries. In his letter requesting the allocation, the Secretary of Agriculture has called attention to the fact that, while a question was raised at one time as to the legal availability of funds derived from the \$5,000,000 appropriation for the purchase of lands for settlement purposes, the Solicitor of the Department of Agriculture has held that funds duly allocated from such appropriation may be used for such purposes. I recommend, therefore, that you approve of this allocation.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved June 6, 1941.

(Signed) FRANKLIN D. ROOSEVELT.

THE SECRETARY OF THE INTERIOR,  
*Washington, November 5, 1943.*

THE PRESIDENT,

*The White House,*

*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: There is presented herein for your approval a proposal to complete and to bring into operation the Second Division of the Buffalo Rapids irrigation project in Prairie County, Montana, under the provisions of Section 4 (d) of the Act of October 14, 1940 (54 Stat. 1119), as amended by the Act of July 16, 1943 (Public Law 152—78th Congress). The construction of this project which involves the development of a water supply for 11,600 acres of new land was approved by you on May 15, 1940, under the terms of the Interior Department Appropriation Act of 1940.

#### STATUS OF CONSTRUCTION

The project as approved originally would consist of three units—the Shirley unit, the Terry unit, and the Fallon unit. With the

exception of a small amount of backfilling around structures, some minor bridge construction, and the installation of a third pump, the Shirley unit is ready for crop production. While it would be desirable to install the pump soon, it could be deferred until some future date, if necessary. The canal system on the Terry unit has been completed, and the pumping plant is now being erected. Construction of this unit is being accomplished with Civilian Public Service labor, and is expected to be ready for crop production during the irrigation season of 1944. A preference rating for the Shirley and Terry units expired on September 30, but was extended by the War Production Board on October 7 to June 30, 1944.

Major construction features of the Fallon unit would be a main pumping plant on the Yellowstone River, a relift pumping plant, a system of canals and laterals, and a short transmission line. Excavation for the pumping plant was about 10 percent complete when the War Production Board issued a stop-construction order in December 1942. Considerable amounts of materials were delivered for this unit before the stop-construction order was issued, and are now on the site ready to be incorporated into the various structures. Critical materials yet required amount to 202 tons of steel, wire rope, nails, bolts, repair parts for construction equipment, and similar items. An application for a preference rating for the Fallon unit has been submitted to the War Production Board. If a favorable priority is assigned within a reasonable time, it is believed that the unit will be ready for irrigation in the spring of 1945.

#### ESTIMATED COST OF FINANCING PROCEDURE

When you approved this project for construction on May 15, 1940, it was estimated that the total cost of constructing the three units of the Buffalo Rapids project would be \$1,390,000, of which the Work Projects Administration would furnish \$875,000 in the form of labor and some materials. The balance of the cost, \$515,000, was expected to be repaid by the prospective irrigators, this amount being regarded as within their ability to repay over the statutory repayment period. Because of increased construction costs brought about by the war, it appears that the total cost of the completed project would be about \$1,628,000. Of the total cost, \$515,000 has been allotted from the appropriation for Water Conservation and Utility projects. The Work Projects Administration furnished labor and materials to the value of approximately \$329,000 out of their original estimated contribution of \$875,000, and the Civilian Conservation Corps furnished approximately \$18,000. The Selective Service System has contributed about \$40,000, and it is expected that this agency will contribute an additional \$40,000, exclusive of War Department costs, through the Civilian Public Service Camp which has been established. The present financial arrangements proposed for the completion of the Second Division are as follows:

Total estimated cost.....		\$1,628,000
Allotted .....	\$515,000	
Available for allotment.....		
Contributed by Work Projects Administration.....	329,000	
Contributed by Civilian Conservation Corps.....	18,000	
Contributed by Civilian Public Service Camp.....	40,000	
Anticipated Civilian Public Service participation....	40,000	942,000
Estimated balance required in lieu of anticipated contributions...		686,000
Overallotment for equipment which would be credited upon completion of the project.....		20,000
Estimate of funds required.....		706,000

If you approve the continuation of construction of the Second Division, it is proposed to allot \$706,000 from the appropriation for Water Conservation and Utility projects, in lieu of the contributions of the Work Projects Administration and the Civilian Conservation Corps, and to continue construction in accordance with Section 4 (d) of the Act of October 14, 1940, as amended. Sufficient funds for this purpose have been appropriated and are now available for allotment.

#### CONSULTATION WITH THE WAR FOOD ADMINISTRATOR

On March 2, 1943, I transmitted to the Secretary of Agriculture, for his consideration, an optimum 5-year program covering the production of certain critical war foods in which the Bureaus of the Department of the Interior have special administrative responsibilities. The Fallon unit of the Buffalo Rapids project was among the irrigation projects recommended for consideration. Additional information was transmitted on July 2. This material is now under consideration by the War Food Administrator, who is expected to transmit his recommendations to the Chairman of the War Production Board at an early date.

#### FINDINGS AND RECOMMENDATIONS

Reimbursable costs were heretofore fixed at \$515,000 in the finding which you approved on May 15, 1940. The War Food Administrator, acting in the stead of the Secretary of Agriculture, and I, will agree upon expenditures to be excluded from the project costs. I am of the opinion that the amount of \$515,000 should continue to be the measure of the water users' ability to repay construction expenditures. Within the limits of the authority of the Act of July 16, 1943, I shall make adjustments of the project's construction cost to the extent necessary to keep the reimbursable costs in conformity with that finding.

I have consulted with the War Food Administrator, acting in the stead of the Secretary of Agriculture, concerning the justification of this project. Based on these consultations and on the information available to me concerning the project, I am of the opinion that the proposed construction would be justifiable as an aid in the production of needed agricultural products.

I recommend that you approve this report and finding, and that you authorize the expenditure of funds under the above act, to continue construction on the Shirley and Terry units, and to resume construction on the Fallon unit as soon as the War Production Board grants a favorable priority rating.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

*November 30, 1943.*

Approved in accordance with my letter of November 30, 1943:  
(Signed) FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,  
*Washington, November 30, 1943.*

The Honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On November 5, 1943, you submitted for approval your proposal for the continuation of construction of the Second Division of the Buffalo Rapids irrigation project in Montana, under the terms of the Act of August 11, 1939, as amended.

This project is approved with the stipulation that no commitments to the construction of the Fallon unit will be made until adequate priority ratings for the materials required for that unit are issued by the War Production Board.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.



# BUFORD-TRENTON PROJECT<sup>1</sup>

NOVEMBER 14, 1904.

The Honorable the SECRETARY OF THE INTERIOR.

SIR: During the summers of 1903 and 1904 reconnaissance investigations and surveys have been in progress to determine the feasibility of irrigating the lands along the Missouri River in North Dakota by the use of the waters of that river. The fall of the river is so slight that it is not practicable to divert it upon the irrigable lands which lie at a considerable elevation above the low water plane. The only feasible method of irrigating these lands and utilizing the abundant water supply of the Missouri River in this region is by pumping.

Extensive beds of lignite appear throughout this region and it is proposed to utilize this for the production of power for pumping the waters of the Missouri River above the adjacent lands.

The work has now reached a point where the preliminary investigations are completed and the experts engaged upon the plans and estimates have reported two feasible projects. One is known as the Buford-Trenton tract, situated on the left bank of the Missouri River close to the western boundary of the State where 18,000 acres of irrigable land can be reached at elevations above the low water plane of the Missouri River varying from 25 to 85 feet. It is proposed to irrigate this by means of two pumping plants, the first cost of which is estimated at \$300,000 and the annual maintenance and operation charges at \$36,000.

Under the provisions of the Reclamation Act it will be necessary for the irrigators to make 10 annual payments of \$3.66 per acre and subsequent annual payments of \$2 per acre. These estimates are preliminary and may be modified by more complete surveys.

The other project recommended is known as the Bismarck tract and lies in the vicinity of Bismarck. It contains 15,000 acres of

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<sup>1</sup> The Buford-Trenton project was found feasible by the Secretary under the original Reclamation Act prior to its amendments. The project was unsuccessful, however, and the Act of Congress, May 6, 1928, 44 Stat. 653, authorized the cancellation of all water right charges and the release of all liens existing against the lands in the Buford-Trenton project on account of the water right charges.

However, in 1939, under the terms of the Water Conservation and Utilization Act of August 11, 1939, as amended, a second plan was proposed for a project, in the same general area as the original.

irrigable land at elevations varying from 25 to 65 feet above the low water plane of the Missouri River at that point. It is proposed to irrigate this tract by the installation of two pumping plants, the first cost of which is estimated at \$250,000. The annual operating expenses are estimated at \$30,450.

Under the requirements of the Reclamation Act the irrigators will be required to pay 10 annual installments of \$3.70 per acre and subsequent annual payments of \$2.03 per acre. These estimates are preliminary and may be modified by more complete surveys.

Most of the land under both projects is in private ownership and some of it in tracts which will require subdivision before it can receive the benefit of the Reclamation Act.

In view of the facts presented I have to recommend that you give your preliminary approval to these projects and that the Chief Engineer of the Reclamation Service be authorized to complete detailed investigations, plans, and estimates preparatory to construction.

I have to recommend further that the sum of \$550,000 be tentatively set aside in the reclamation fund for these two projects pending the results of final surveys, estimates, etc.

I have to recommend further that the Chief Engineer of the Reclamation Service be authorized to take proper steps to inform the landowners of the tracts proposed to be irrigated of the cost of the proposed works and annual operating expenses, and the requirement of the Reclamation Act regarding payments by water-users, etc., for the purpose of determining whether they will co-operate with the Government in the manner provided by the Reclamation Act in carrying out the two proposed reclamation projects herein described.

Very respectfully,

(Signed) H. C. RIZER,  
*Acting Director.*

OFFICE OF THE SECRETARY,  
*Washington, November 18, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of the 14th instant to the Department the Acting Director reported that reconnaissance surveys and investigations along the Missouri River in North Dakota have developed two feasible projects for irrigation by pumping methods in this region in connection with which it is proposed to use extensive

beds of lignite in the vicinity for the production of pumping power.

The Acting Director states that under the first project, embracing the Buford-Trenton tract, 18,000 acres of irrigable land can be reached at elevations above the low water plane of the Missouri River varying from 25 to 85 feet, which it is proposed to irrigate by means of two pumping plants, the first cost of which is estimated at \$300,000, and the annual maintenance and operation charges at \$36,000, and that under the second project embracing the Bismarck tract, 15,000 acres of irrigable land, at elevations varying from 25 to 65 feet above the low water plane of the Missouri River, may be irrigated by the installation of two pumping plants, the first cost of which is estimated at \$250,000, and the annual operating expenses of \$30,450. He has stated further that under the provisions of the Reclamation Act it will be necessary for the irrigators under the first project to make 10 annual payments of \$3.66 per acre and subsequent annual payments of \$2 per acre, and under the second project 10 annual installments of \$3.70 per acre and subsequent payments of \$2.03 per acre.

In view of the facts presented the Acting Director has recommended preliminary approval of the projects named, that the sum of \$550,000 be tentatively set aside in the Reclamation Fund for said projects and that the Chief Engineer of the Reclamation Service be authorized to complete detailed investigations, plans and estimates preparatory to construction. He has further recommended that the Chief Engineer be authorized to take steps to inform the landowners of the tracts proposed to be irrigated, of the cost of the proposed works, the annual operating expenses and the requirement of the Reclamation Act regarding payments by water-users, etc., for the purpose of determining whether they will cooperate with the Government in the manner provided by said act.

After consideration of the matter, I approve all of said recommendations, the sum of \$550,000, or so much thereof as may be necessary, is hereby set aside from the fund provided by the act of June 17, 1902— 32 Stat. 388— tentatively, for use in connection with said projects, and you are hereby authorized to take such action under the law to carry these projects to a successful conclusion and to inform the landowners concerned of the cost of the proposed works.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

For Board of Engineer's report, September 22, 1905, the Director's two letters of September 28, 1905 and January 16, 1906, and the Secretary's two letters of January 4, 1906 and January 23, 1906, see the Nesson project (page 357).

OFFICE OF THE SECRETARY,  
*Washington, August 23, 1939.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contains an item of \$5,000,000 from which allocations may be made by you:

For construction, in addition to labor and materials to be supplied by the Works Progress Administration, of water conservation and utilization projects, \* \* \* in the Great Plains and arid and semiarid areas of the United States, \* \* \*

All expenditures from the appropriation, and as much of the expenditures from the Work Projects Administration fund as the President determines, are to be considered reimbursable. Hereinafter the appropriation item will be termed the "1940 Water Conservation Appropriation."

A request for an allocation for the Second Division of the Buffalo Rapids project on the Yellowstone River in Montana was submitted to you recently. Approximately 90 miles downstream from the Second Division and immediately beyond the confluence with the Missouri River is another area of 13,400 acres of fertile land which could be brought into cultivation by the construction of irrigation works under plans proposed by the Bureau of Reclamation for the Buford-Trenton project. The lands lie on the north side of the Missouri River, in Williams County, North Dakota, and extend from Buford, past Trenton, nearly to Williston. All are river bottom lands of high fertility and are well adapted to irrigation.

The subnormal precipitation in practically every year since 1929 has greatly decreased crop production on dry farmed lands and caused a marked decline in the agricultural and livestock industry of western North Dakota. A report of the Bureau of Reclamation completed in 1938 showed that in Williams County the harvested area had decreased more than 400,000 acres, 65 percent of all farms were delinquent in tax payments, the number of horses, cattle, sheep and hogs had decreased more than 50 percent, and 15,000 out of a total population of 19,000 were supported by direct relief or Federal labor projects.

The project is urgently needed to stabilize the agricultural and livestock industries in the region. Its construction conforms to the intent of the 1940 Water Conservation Appropriation and has been approved by the Northern Great Plains Committee. I recommend, therefore, that the Buford-Trenton project be built in accordance with the provisions of the 1940 Water Conservation Appropriation item.

Water for the irrigation of the project lands will be obtained from the Missouri River. The principal features to be constructed are a pumping plant of 30 foot maximum lift and 245 cubic feet

per second capacity, 15 miles of main canal of 250 cubic feet per second initial capacity, 6 miles of laterals and several sublaterals, all necessary farm ditches, and a drainage system. Rough land leveling also will be included in the construction program. Electrical energy required for pumping will be obtained from the plant to be installed at the Fort Peck Dam and will be delivered by transmission lines already in existence or to be erected by the Bureau of Reclamation with funds specifically appropriated for that purpose.

The crops which will be raised on the project primarily will be forage and small grain to be used in the support of the livestock industry. The main line of the Great Northern Railroad passes through Buford, Trenton and Williston, thus providing ready access to markets. Any large land holdings will be divided into farm units of more desirable size and a part of the project will be settled with destitute, drought-stricken farmers. Settlement will be guided and education will be given in irrigation procedure. Control of the land is expected to be obtained through option agreement or purchase, using funds already available to the Department of Agriculture. An irrigation district, or similar type of organization, will be formed to contract for the collection of construction charges and to operate the project after it is constructed.

The estimated cost of construction is \$1,500,000. The experience of the Bureau of Reclamation on projects which are similarly situated indicates that the water users will be able to repay at least \$630,000 of this amount over a period of forty years, and in addition to carry the annual cost for electrical energy, other operation and maintenance, and any land purchase charges. This sum should be obtained from the 1940 Water Conservation Appropriation and be expended primarily for administration, supervision, materials, supplies and rights of way. The remaining amount of \$870,000 required to construct the project is expected to be provided by the Work Projects Administration and to be expended largely for relief labor. A tabulation is attached in which is shown a tentative breakdown of expenditures from the two funds. The estimate of expenditures from WPA funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to F. Y. 1940. The efficiency with which the work can be conducted under the new WPA Act is unknown. Therefore, the estimate of WPA funds required may need revision at some later date.

I recommend that the construction of the Buford-Trenton project be undertaken by the Bureau of Reclamation; that the land development program and the arrangements for settlement, repayment, and project operation be conducted by bureaus of the Department of Agriculture; and that assistance be given by the National Resources Planning Board in the planning and coordinating field.

I recommend that an allocation of \$630,000 from the 1940 Water Conservation Appropriation be made to the Department of the Interior, Bureau of Reclamation, and that the Work Projects Administration be requested to give prompt consideration to the

project applications which will be filed by the Bureau of Reclamation to secure the remaining \$870,000 needed for the construction of the Buford-Trenton project.

The Department of Agriculture and the National Resources Planning Board will be reimbursed for all services connected with the construction of the project by transfers or advances from the funds made available to the Department of the Interior, Bureau of Reclamation, for construction of the project. Letters containing the comments of the Department of Agriculture and the Work Projects Administration are enclosed.

It is contemplated that actual construction will not be started until the Department of Agriculture has made sufficient progress in its effort to obtain control of the land, at prices which do not exceed appraised valuations, to insure the successful operation of the project. The time required for the construction of the project will depend largely on the availability of relief labor and may extend to two or three years.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved SEPTEMBER 23, 1939.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, July 22, 1942.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: On September 23, 1939, you approved the construction of the Buford-Trenton irrigation project in Williams County, near the towns of Buford and Trenton, North Dakota. Construction began on May 6, 1940, for the development of 13,400 acres. During the early construction period, excellent progress was made possible with labor supplied through the Civilian Conservation Corps and the Work Projects Administration. However, the labor turnover was great due to the WPA workers accepting employment elsewhere after they had received training on project construction. This situation increased the cost of operations and the costs were further increased by the rise in the prices of material and equipment from the time the project was initiated.

It had also become apparent early in construction that there were possibilities for bringing in an additional area of land by

slight changes in canal locations and capacities at a comparatively slight increase in cost. These changes were made, and it is now found that an additional 1,400 acres can be added to the project.

The increase in cost brought about by the three items mentioned above makes it necessary to obtain an additional allotment to complete the work. The economic feasibility is not affected adversely, since the project acreage has been increased.

The project purpose and plan of development are the same as outlined in my report to you dated August 23, 1939, on the Buford-Trenton project which you approved September 23, 1939. A copy of this report is attached. In spite of the decreasing labor market and the increasing difficulties in obtaining materials and supplies, the project is now over 80 percent complete, and a little additional effort at this time will bring the lands into production in the summer of 1943. The work now remaining largely comprises the completion of the main canal, laterals, and pumping plant, which involves principally excavation, land leveling, and installation of materials on hand, so that few strategic materials are required. An application has been submitted to the War Production Board covering the needed materials. The total value is \$19,588, of which approximately 50 percent is for materials such as cement, construction lumber, and wood poles, which are not considered critical.

It is estimated that the Bureau of Reclamation will require \$138,000 of reimbursable funds for construction purposes on the expansion. A similar amount of reimbursable funds is requested by the Department of Agriculture, in addition to \$170,000 expected to be provided from Civilian Conservation Corps, Work Projects Administration, or other nonreimbursable funds. A tabulation which follows indicates a tentative breakdown of expenditures from the two funds. In addition to the reimbursable costs, it is believed that the water users will be able to carry the annual costs of electrical energy, other operation and maintenance costs and any other land purchase charges. The estimated funds required from the Special Fund for construction and land development are, however, in excess of the unallocated amount remaining in the appropriation item for Water Conservation and Utilization projects.

It is recommended that the sum required for construction of this expanded project be obtained by rescinding the money previously allotted for the Bismarck irrigation project in Burleigh County, North Dakota. Other money required for labor and a small amount of materials, supplies, and equipment should be provided by the Work Projects Administration, Civilian Conservation Corps, or similar agency.

The Bismarck project was approved by you on April 26, 1940, under the terms of the Interior Department Appropriation Act of 1940. The original plan was to acquire agricultural lands in the project area, and to break these holdings down into family-size tracts not to exceed 160 acres. In the Bismarck area, where rehabilitation is an important part of the development, this limitation on acreage seems particularly desirable. Since the time you approved this project, negotiations have been carried on for

the acquisition of the lands, but have been unsuccessful, due to the reluctance of certain landowners having large holdings in the project area, to dispose of them. While considerable interest is still being shown in this development by farmers who desire and need such a project, it is believed that further consideration of the project should be deferred until some assurance is received that those landowners who now hold lands in excess of 160 acres, will be willing to dispose of them.

In view of the above facts, I recommend that by your approval of this report, you find that the allotment of \$250,000 previously made for the Bismarck irrigation project should be and is rescinded and, further, that this sum and \$26,000 to be allocated from the unallocated funds remaining in the 1940 appropriation item for Water Conservation and Utilization projects are herewith allotted to the Bureau of Reclamation for the expansion of the Buford-Trenton project to include 1,400 acres of land within the original project area which have been determined to be feasible for irrigation development.

A report containing the recommendation of the Secretary of Agriculture is enclosed.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
Approved AUGUST 7, 1942.

(Signed) FRANKLIN D. ROOSEVELT.

THE SECRETARY OF THE INTERIOR,  
*Washington 25, D. C., January 30, 1945.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: On September 23, 1939, you authorized the Bureau of Reclamation to construct the Buford-Trenton irrigation project in Williams County, North Dakota, under the terms of the \$5,000,000 item in the Interior Department Appropriation Act of 1940.

During the construction of the project, it was found upon reclassification of the project lands that an additional 1,400 acres could be included within the project area. Accordingly, I recommended the inclusion of these lands and you approved my recommendation on August 7, 1942. Copies of the papers relating to both approvals are attached.

Under the terms of your approval, the Bureau of Reclamation was to construct the irrigation features of the project and the



Department of Agriculture was to supervise land development and settlement activities. The Bureau of Reclamation completed construction activities in the spring of 1943 and a memorandum of understanding transferring the project from the Department of the Interior to the Department of Agriculture was executed by the respective Departments and approved by you on January 27, 1944. A copy of these papers is attached also.

There is enclosed a copy of a letter dated May 15, 1944, addressed to me from the Assistant War Food Administrator transmitting the enclosed letter dated May 15, 1944, addressed to you from the Assistant War Food Administrator, acting in the stead of the Secretary of Agriculture. These letters outline the program proposed to be undertaken by the Department of Agriculture, under the provisions of Section 4(d) of the Act of October 14, 1940 (54 Stat. 1119) as amended by the Act of July 16, 1943 (Public Law 152, 78th Congress). The program appears to be one coming within the scope of the authority of that Act and in my judgment, the work proposed by the Assistant War Food Administrator should be undertaken by the Department of Agriculture as an aid in the production of needed agricultural products.

Since the Bureau of Reclamation has completed the construction of the pumping plant, canal system, and pertinent works for this project, and the Department of Agriculture has completed approximately 34 per cent of the work for which it is responsible, it appears desirable for the Department of Agriculture to continue with land development and settlement activities as rapidly as possible. To perform this function, it is estimated that the Department of Agriculture will require an allotment of \$395,000. The details of the financing arrangements are set forth in Mr. Cowen's letter.

You will note that Mr. Cowen recommends that the sum of \$395,000 be obtained by rescinding \$349,594.58 from the unexpended balance of funds allocated for the use of the Department of Agriculture on the Saco Divide project in Montana, and that \$50,000 be rescinded from sums allocated to the Department of Agriculture on the Eden Valley project in Wyoming. The above sum of \$349,594.58 represents the balance remaining out of the \$350,000 heretofore allocated for the use of the Department of Agriculture on the Saco Divide project. The papers relating to the project, which were approved by the President on April 11, 1941, provided that \$150,000 of the \$350,000 would be allocated directly to the Department of Agriculture and \$200,000 would be allocated to the Department of the Interior for the use of the Department of Agriculture.

I concur in Mr. Cowen's statements and recommend that you approve this report.

Sincerely yours,

(Signed) ABE FORTAS,  
*Acting Secretary of the Interior.*

THE WHITE HOUSE,  
Approved MARCH 14, 1945.

(Signed) FRANKLIN D. ROOSEVELT.

# BURNT RIVER PROJECT

THE SECRETARY OF THE INTERIOR,  
*Washington, September 25, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*) indicated that Section 4 of the act of June 25, 1910, 36 Stat. 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Burnt River project is made to you under said statute of 1910 and under Subsection B of Section 4 of the act of December 5, 1924, 43 Stat., 701.

Section 4 of the act of June 25, 1910, provides, in effect that after the date of that act no irrigation project to be constructed under the act of June 17, 1902, 32 Stat., 388, and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 13, 1935, an allotment of \$500,000 was approved for the construction of a storage reservoir on the Burnt River in Oregon, which allotment is now available.

The water stored in the proposed reservoir will be used for the benefit of some 15,000 or more acres of land in the Burnt River Valley in Oregon, which has been settled and partially irrigated for many years but has suffered severely from water shortages and resulting crop losses on account of an insufficient flow of water in this stream during the last half of the irrigation season.

The land to be benefited is located partly above and partly below the proposed reservoir. The lands above the reservoir will be benefited by exchanging reservoir water for natural flow water belonging to prior rights below the reservoir, thus enabling the lands above the reservoir to secure the natural flow which would otherwise have to be turned down to supply the prior rights below. The lands to be benefited are now embraced in the Bridgeport Irrigation District, which district has been recently enlarged to include all the land for which an improved water supply is to be furnished by means of the proposed reservoir (both the land above and below the reservoir). I am advised that the name of this district will be changed shortly to the Burnt River Irrigation District. This district is preparing to enter into a contract with the United States to repay the cost of work over a term of 40 years without interest. Contracts will be made with the district and with the landowners thereof in the endeavor to prevent the furnishing of stored water leading to a substantial rise in the land values. Each owner of more than 160 acres of land to be irrigated by the additional water supply will be required to enter into a contract to sell the excess at or below prices fixed therefor by the Department.

The proposed reservoir is to be constructed at the site commonly known as the Unity reservoir site, the dam forming the reservoir to be located across Burnt River near the point where the North Fork, West Fork, Middle Fork, and South Fork of Burnt River come together.

It has been estimated that a reservoir with a capacity of 25,000 acre-feet can be constructed at this site at a cost of \$550,000. A slightly smaller reservoir can be constructed at a cost not exceeding the \$500,000 which has been allotted for this purpose.

Studies which have been made by the Bureau of Reclamation indicate that the water supply is adequate for the proposed reservoir, that the construction of the proposed dam is feasible from an engineering standpoint, and that the dam can be built within the cost of \$500,000 allotted for that purpose, which the Irrigation District is to agree to pay. The reservoir will not be constructed if, upon calling for bids, it is found that the cost of the dam will overrun the \$500,000 allotment, but in that event the bids will be rejected and bids called for on a somewhat smaller reservoir, the cost of which can be kept within the \$500,000 allotment.

This storage will provide additional water urgently needed for irrigated lands in the Burnt River Valley and afford a better water supply for several towns in that valley including the town of Huntington, Oregon, which is a railroad division point on the Union Pacific System.

I find that the project is feasible, that the land watered thereby is adaptable for actual settlement and farm homes, and that the landowners benefited by the project will be able from the agricultural produce of the lands irrigated by the reservoir to return the cost of the development to the United States, and that the project probably will return the cost thereof to the United States.

I recommend that the project be approved and that the neces-

sary authority be issued to the Department to make contracts for the construction of the project and to proceed with the work.

Sincerely yours,

(Signed) CHARLES WEST,  
*Acting Secretary of the Interior.*

Approved<sup>1</sup>.

....., *President.*

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<sup>1</sup> The above is a copy of a letter in files of the Department of the Interior. Thorough search has failed to disclose the original letter bearing the signature of the President and accordingly it is presumed to be lost or destroyed. Letter dated August 13, 1935, approving an allotment of \$500,000 under the Emergency Relief Appropriation Act of 1935 for this project for the purpose indicated above and bearing the signature of the President, is on record.

# CARLSBAD PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Carlsbad, N. Mex., August 31, 1905.*

CHIEF ENGINEER,  
*U. S. Reclamation Service, Washington, D. C.*

SIR: The board of engineers designated to consider the Carlsbad Project, New Mexico, submits the following report:

During October, 1904, a flood in the Pecos River destroyed a large portion of Avalon dam upon which the diversion for the Pecos Irrigation Company's canal system depends.

During the winter of that year and the spring of this year efforts were made to construct a temporary diversion dam and flume in order that water might be furnished for irrigation during the present season.

The money for this purpose was furnished by the company and the work was performed under the supervision of the engineers of the Reclamation Service engaged in investigating the project.

The flood conditions of the Pecos River during this construction were such that the proposed work was destroyed and it became impossible to furnish any water for irrigation.

Fortunately, there were unusual rains during the irrigation season so that some crops were raised and the orchards were only partially killed, but the district as a whole is on the verge of ruin. About 15,000 acres heretofore irrigated, upon which there is dependent a population of some 3,000 people and property to the value of about two million dollars will return to desert conditions unless some action can be taken to provide a reliable irrigation system, and the loss of the agricultural improvements already made will be complete unless some water can be furnished during the irrigation season of 1906.

The present condition of the irrigation system of the Pecos Irrigation Company is as follows:

The McMillan reservoir which has served to supply the small amount of storage rendering possible the irrigation of 15,000 acres is underlaid by gypsum beds. This gypsum dissolved by the action of the stored waters has caused a large number of sink holes through which considerable quantities of water have been lost. The investigations indicate that a considerable percentage

of this leakage is not recovered for use in the system. These leakage conditions have become worse in the last few months. Consequently this reservoir can not be relied upon for permanent storage so far as the conditions are now understood. It may, however, serve for temporary or auxiliary storage. Considerable work is required to replace the gates and spillway in serviceable condition.

The Avalon reservoir is used for diversion into canal system and furnishes an inconsiderable amount of storage. The dam is destroyed for a space of 450 feet at the river channel. This must be replaced and the entire structure including the remaining 1,000 feet of embankment must be made impervious by a concrete and metal core. Extensive repairs and reconstruction are required at the headworks of the canal.

The piers of the concrete aqueduct carrying the west side canal across the Pecos River have settled and considerable expenditure will be required to make it serviceable. Unless this work is immediately performed the aqueduct is liable to be destroyed by the flood waters.

The canal system passes through gypsum beds in numerous places causing great waste of water, more than one-half the amounts turned into it being lost. Considerable sums must be expended to reduce this loss to a reasonable percentage and much excavation will be needed to clean out the canals and restore them to the necessary carrying capacity, besides which there are a number of repairs to be made.

A study of the soil conditions shows that by using Lake McMillan for storage to the extent which it has heretofore supplied, putting the canals in proper condition, reducing the loss and avoiding waste in the use of water in irrigation an area of 20,000 acres of first and second class land can be furnished with water, including the areas heretofore cultivated.

Upon making an estimate of the expense of reconstruction it became evident that the possibility of taking up the project under the Reclamation Act depended upon the price for which the plant of the Pecos Irrigation Co. could be purchased by the United States.

The par value of the Company's stock is \$450,000, bonds outstanding \$355,000, on which the interest for 18 months is due. The following statement was made by the company as to obligations which must be paid in full.

Prior lien bonds at 6 percent.....	\$50,000
6 percent interest for 18 months.....	4,500
Bonds non-consenting to prior lien or to any trade.....	25,000
Money expended winter of 1904-1905 for flood repairs.....	36,500
Expenses legal, etc., estimated.....	10,000
Work yet to be done, estimated.....	10,000
Contingent.....	4,000
	<hr/>
	140,000

In addition to this, bonds to the amount of \$280,000 with an addition of 5% accrued interest for 18 months must be retired.

Three conferences were had with the company's representa-

tives. The first offer made was \$350,000, finally it was stated by Mr. Francis G. Tracy, President and General Manager, that he felt unable to assure the board that a price of less than \$250,000 would be accepted by the bond holders.

The necessary reconstruction and repairs for the irrigation of 20,000 acres depending upon the storage to be had from Lake McMillan may be placed at \$450,000 as a safe estimate.

A careful consideration of the agricultural conditions brings the board to the conclusion that a charge of \$30 per acre without maintenance is all that should be placed upon the land.

Upon this basis it appears to the board that the extreme price which can be paid for the entire irrigation plant and property of the Pecos Irrigation Co. including right of way, reservoir sites, claims to water, existing canals, laterals, structures, buildings, etc., excluding only the irrigable lands owned by the company and the canal known as the Hagerman Land and Improvement Company's canal on the east side of the river heading in sec. 11 T. 23 S., R. 28 E., is \$150,000. It will be necessary also for the company to sign the usual contracts providing for the disposition of its lands in tracts not exceeding 160 acres so that the same may become subject to the provisions of the Reclamation Act.

This sum is regarded as the present value of the plant, although the expense of construction has been much greater.

The full development of this project would provide for the irrigation of 40,000 acres of first and second class land, involving the use of what is known as Reservoir No. 3 with a capacity of 65,000 acre-feet.

The right of way for Reservoir No. 3 was approved by the Secretary of the Interior under the act of March 3, 1891 in favor of the Pecos Irrigation and Improvement Co., a predecessor of the Pecos Irrigation Co.

The public lands upon which this site is located were withdrawn some two years ago under the first form of withdrawal under the Reclamation Act.

An estimate of the cost of constructing the storage works for the utilization of this reservoir and the proper extension and enlargement of the canal system for irrigating 40,000 acres, may be safely placed at \$600,000 in addition to the estimated cost for 20,000 acres.

The estimated cost for 40,000 acres would therefore be \$1,050,000. Adding the amount deemed proper for the purchase of the existing irrigation plant makes the total cost for the larger acreage \$1,200,000. This makes a cost per acre of \$30, without maintenance which we regard as the largest charge to be properly made against this land.

The advisability of using Reservoir No. 3 depends upon the results shown by further examination of the site, to determine whether gypsum beds exist such as to prevent its use for storage. It is believed that the necessary borings can be completed by November 1, 1905.

Assuming that this reservoir site can be used, and also that the existing irrigation plant can be acquired at the price stated, it will be necessary that the entire acreage of irrigable land under

the project must be signed up under the provisions of the articles of incorporation of the Water Users Association and that the holdings in excess of 160 acres shall be included in the usual contracts to insure subdivision by the time water is ready to be furnished therefor. We have conferred with the officers of the Water Users Association and have laid the situation fully before them. They are prepared to take any action deemed necessary by the Reclamation Service for the success of the project.

We therefore recommend:

1. That the necessary borings at the site of the Avalon Dam and of Reservoir No. 3 be completed at the earliest possible date.

2. That the Pecos Irrigation Co. be asked to inform the Reclamation Service before September 30, 1905, whether it will transfer its entire irrigation plant to the United States for the sum of \$150,000 as herein stated.

3. That if the company agrees to a sale at such a sum, the 20,000 acre project herein outlined be at once taken up so that water may be furnished for irrigation at the earliest possible date.

4. That if Reservoir No. 3 shall be found suitable for storage the 40,000 acre project be taken up for construction.

5. That if the Pecos Irrigation Company refuses to make a sale at the sum mentioned all work on the project shall cease.

Very respectfully,

(Signed) W. H. SANDERS,  
*Consulting Engineer.*  
GEO. Y. WISNER,  
*Consulting Engineer.*  
MORRIS BIEN,  
*Supervising Engineer.*  
B. M. HALL,  
*Supervising Engineer.*  
W. M. REED,  
*District Engineer.*

OFFICE OF THE SECRETARY,  
*Washington, November 23, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: On October 19, 1905, you submitted to this Department a copy of a report of the Board of Engineers dated August 31, 1905, regarding the Carlsbad Project, New Mexico, resolutions signed by Henry F. Christian, Secretary of the Pecos Irrigation Company dated September 30, 1905, and a letter from F. H. Newell, Chief Engineer, dated October 14, 1905. The closing paragraph of your said letter commended to my favorable con-



sideration this project, which was the subject of the above enumerated papers.

The Department construed the language used in your said letter of the 19th ultimo as tantamount to a concurrence in the recommendations of the Board of Engineers and the Chief Engineer of the Reclamation Service which were, first, that necessary borings be completed at the earliest possible date; second, that the Pecos Irrigation Company be asked whether it will sell its property for the sum of \$150,000 (the company by offer of September 30, is willing to accept \$150,000); third, that following this agreement the 20,000 acre project be taken up at once at an expenditure of approximately \$30 per acre, or \$300,000; fourth, that the larger project, involving 40,000 be taken up if suitable storage can be found.

In your letter of October 9 on this same subject, after discussing the condition of the Reclamation Fund and the estimated balance that would be found therein on July 1, 1908, you stated:

The consideration of the Carlsbad project may be made from either one of two standpoints, first, apportionment by states; second, apportionment by merit. If apportionment by State or Territorial lines is alone considered, then it will not be possible to take up this project. If, however, apportionment by merit is to govern, then there is no doubt that this project is among the most meritorious under consideration and should be preferred as against projects in Montana, North Dakota or Oklahoma.

In your letter of November 14, you embodied a message received from Mr. A. P. Davis, Assistant Chief Engineer then at Carlsbad, N. Mex., in which he stated:

McMillan reservoir leaks are worse than last year and menace the dam. Storage capacity is so precarious that it is unwise to irrigate new land. There is no reason why the Government should touch this project except to save improvements already here. Developments on reservoir three unfavorable. The proper repair and difficult maintenance of the project will cost all the land will stand without any payment for present system. The estimates sent in did not include maintenance which will be very heavy.

You also quoted a message addressed to Mr. Davis at Snyder, Okla., on the same subject, as follows:

Wire whether Carlsbad Project can be put in shape to deliver water to irrigated lands next spring if approved now, reasonable time being allowed for advertising and execution of contract.

and his reply thereto as follows:

No, but if done by force account and vigorously pushed water can be delivered in time to save trees and alfalfa, barring unexpected floods.

You concluded your letter with the statement that the above was submitted for my consideration in connection with data and reports previously furnished the Department on the same subject.

In your letter of November 15, 1905, in reference to this same project, you referred to previous correspondence on the subject

and to the recommendation made by you in your letter of November 9, as to the manner in which the estimated balance of the Reclamation Fund should be apportioned, and stated that

In view of your letter of November 8, I can not with propriety oppose the presenting of these projects to you, but I must still adhere to my original recommendation that this estimated balance be apportioned as originally planned.

I am now in receipt of your letter of the 20th instant in which you conclude as follows:

I have already discussed the financial situation in my letter of November 16 which refers to my letter of November 9, and also to my letter of October 19, in which I have commended the project to your favorable consideration, in connection with the final determination of policy as regards investment of the estimated balance of the reclamation fund.

and you also stated in the opening paragraph of your letter that:

Referring to the Carlsbad project, the Board which recently met to consider this project reports that, in general, the situation has not changed since the time of the report of the board dated August 31, 1905, and transmitted to you by my letter of October 19.

In view of the above and foregoing, the Department is somewhat confused as to the attitude of the Reclamation Service in regard to this project, and in order that there may be no misunderstanding, I request that you advise me at once specifically on the following propositions:

*First:* Do you or do you not recommend action concerning this project as recommended by the Board of Engineers in its report dated August 31, 1905?

*Second:* If any good and sufficient reasons exist why this project should not be constructed or proceedings had in accordance with the said recommendations of the Board of Engineers, what are they?

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

UNITED STATES GEOLOGICAL SURVEY,  
*Washington, November 27, 1905.*

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: I have the honor to acknowledge receipt of your letter of November 23, 1905, in relation to the Carlsbad Project, New Mexico. After quoting paragraphs from previous letters you ask:

1st: Do you or do you not recommend action concerning this project as recommended by the Board of Engineers in its report dated August 31, 1905?

2nd: If any good and sufficient reasons exist why this project should not be constructed or proceedings had in accordance with the said recommendations of the Board of Engineers, what are they?

If this project came up *de novo*, and there was not any settlements on the Pecos River I would not recommend it to you for consideration at the present time. This would be based upon the fact that there are other projects which present less difficulties from an engineering point of view that should be first considered. From the standpoint of the engineers it is practicable, with ample funds and with freedom to expend these, to rush the work with fair chances of success. None of the experienced engineers are at all eager to take these chances. Their reports, as indicated by the material transmitted to you, are by no means enthusiastic; but there is, as above stated, a fair chance—say three chances out of four—of pushing this work to success from the engineering standpoint.

From the legal or administrative side there may be reasons to be urged against it, such, for example, as the difficulty of securing immediate title to the property involved under prevailing practices. The papers to be examined are complicated, and the recent decisions pertaining to similar transfers are such as to raise doubts as to whether complete title can be conveyed in the near future. If, however, it is possible to waive the question of title to the property involved, and authorize the engineers to at once take possession of this property for the United States and begin construction before the transfers are completed, then it may be practicable to bring the work to a stage of completion sufficient to save the valuable orchards.

Every day's delay, of course, largely increases the jeopardy, and the conditions discussed on August 31 by the engineers as regards prompt construction are being gradually changed by the delays involved. If immediate instructions are issued by wire to the engineers on the ground to take possession of the property and begin work by force account, and as an extraordinary emergency to disregard the 8-hour law, as permitted in Section 3738, U. S. Rev. Stat., it may be reasonable to expect that they may carry on the work successfully, if Nature does not intervene with extraordinary floods.

This leaves the matter largely a question of policy to be decided by you, as to whether the Carlsbad Project should be entered upon at the present time, in view of the condition of the settlers tributary to it, and the state of the Reclamation fund.

Yours respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, November 28, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: The board of engineers designated to consider the Carlsbad project, New Mexico, submitted a report on August 31, 1905, which was approved by the Chief Engineer on October 14, 1905. On October 19, 1905, you submitted said report and the Chief Engineer's letter of approval thereof to the Department with the statement that "this project is one which has been taken up for examination at the earnest request of citizens of New Mexico and I respectfully commend it to your favorable consideration." The emphasis is mine.

The recommendations submitted by said board of engineers are as follows:

1. That the necessary borings at the site of the Avalon dam and of Reservoir No. 3 be completed at the earliest possible date.
2. That the Pecos Irrigation Company be asked to inform the Reclamation Service before September 30, 1905, whether it will transfer its entire irrigation plant to the United States for the sum of \$150,000 as herein stated.
3. That if the company agrees to a sale at such a sum, the 20,000 acre project herein outlined be at once taken up so that water may be furnished for irrigation at the earliest possible date.
4. That if Reservoir No. 3 shall be found suitable for storage the 40,000 acre project be taken up for construction.
5. That if the Pecos Irrigation Company refuses to make a sale at the sum mentioned all work on the project shall cease.

The Pecos Irrigation Company has agreed to sell to the United States for \$150,000 its entire irrigating plant, including right of way, reservoir sites, claims to water, existing canals, laterals, structures, buildings, etc. It must also sign the usual contracts providing for the disposition of its lands in tracts not exceeding 160 acres so that the same may become subject to the provisions of the Reclamation Act. It is the opinion of the Board of Engineers that if these things can be consummated water can be furnished at an early date to 20,000 acres. It is estimated that the repairs necessary to render the system available for the irrigation of that area will require an expenditure of \$450,000, making the entire cost \$600,000 or \$30.00 per acre without maintenance, which the engineers say is all the land will stand. Just how the Government is to be reimbursed for the cost of maintenance does not appear. This is an important item and some arrangement must be made concerning it, as provision must be made for the return to the Reclamation Fund of every dollar expended therefrom on this or any other project.

Information was transmitted here by you on the 14th instant from one of the engineers of the Reclamation Service who examined the project to the effect that the cost of repairs and maintenance will of itself cost all the land will stand without paying anything for the present system. Neither yourself nor

the Chief Engineer, however, as the result of that information, suggested any departure from the course recommended by the Board of Engineers in its report of August 31, *supra*. Indeed, in your letter of the 20th instant you report that "the board which recently met to consider this project reports that, in general, the situation has not changed since the time of the report of the board, dated August 31, 1905, and transmitted to you by my letter of October 19." I conclude, therefore, that the report and recommendation of the Board of Engineers of August 31, 1905, approved by the Chief Engineer and commended by you, still presents the proper view of the situation.

While fully aware of the need of expedition in this matter if the results desired are to be obtained, it is not possible, as suggested in your letter of the 27th instant—

to waive the question of title to the property involved and authorize the engineers to at once take possession of this property for the United States and begin construction before the transfers are completed.

Nor is it possible to at this time issue instructions by wire—

to the engineers on the ground to take possession of the property and begin work by force account, etc.

nor does it seem that such a course is necessary.

In a letter received from H. J. Hagerman, dated October 29, 1905, and referred to you on November 7 for report, the statement is made that Mr. Hall, who is the Supervising Engineer for New Mexico, had stated that if work can be started on or before January 1st next—

enough can be accomplished on the project to enable them to put water for the irrigation of 12,000 acres in the canal by May 1, 1906.

This has not been controverted by anything in the record although it is fully understood that an earlier beginning, if possible, is desirable.

It is also stated in Mr. Hagerman's letter that all of the 20,000 acres which it is proposed to irrigate at first, together with nine thousand acres in addition, have come in under the water users contracts prescribed by the Reclamation Service. It is also alleged in Mr. Hagerman's letter that—

the company is now (October 29, 1905) completing the abstracts of its property under instructions of Mr. Newell, preparatory to submitting them for the approval of the Government.

It is assumed therefore that the water users association has pledged a sufficient acreage to insure the return to the Reclamation Fund of the cost of the project, and that the Pecos Irrigation Company has completed the abstracts of its property.

After careful consideration of the entire matter as disclosed by the correspondence and the conference had with a committee of citizens from New Mexico, at which you were present and in the results of which you concurred, I have reached the following conclusions:

That subject to the conditions hereinafter named the report and recommendations of the Board of Engineers dated August 31, 1905, are hereby concurred in and approved and the sum of \$600,000 is hereby set aside and appropriated from the Reclamation Fund for the irrigation of the first 20,000 acres as recommended in said report. The conditions are as follows:

1. That some arrangement be made to secure to the Reclamation Fund the return of the cost of maintenance and operation of said system, stating the sum estimated, in addition to the cost of purchase and repairs thereof detailed in said Engineers' report.

2. That the acreage pledged by the water users association, and the manner, form and execution of the contracts covering the same are sufficient to protect the United States and guarantee the return to the Reclamation Fund of the sum appropriated and expended therefrom for the purpose herein above stated.

3. That an agreement to purchase the property of the Pecos Irrigation Company be entered into with said Company, as is usual in such cases and submitted here for the approval of the Secretary of the Interior with your recommendations in the premises: that said agreement shall be in the usual form and shall contain a specific and detailed statement of the various items of property which said company proposes to transfer to the United States, free from any charge, lien or encumbrance of any kind or character whatever. Said agreement shall also contain the usual provision that it is based on the condition that said company will furnish an abstract showing good and sufficient title to said property, and will convey the same to the United States by good and sufficient warranty deed.

4. That said Pecos Irrigation Company sign the usual contracts providing for the disposition of its lands in tracts not exceeding 160 acres, so that the same may become subject to the provisions of the Reclamation Act.

It would tend to expedite matters if said Company would, along with the other papers enumerated, transmit a deed to said property duly executed.

You will at once make this matter special. Use the wires freely. As soon as they are received you will forward the papers to the Department. They will be made special here and if found satisfactory you will at once be notified thereof and on receipt of said notice you will at once notify the engineers to take possession of the property and begin work by force account.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

JANUARY 10, 1906.

The Honorable the SECRETARY OF THE INTERIOR.

SIR: I am in receipt of a telegram from F. H. Newell, Chief Engineer Reclamation Service, from which I quote the following:

CARLSBAD, N. MEX., *January 9.*

Conference Sanders Hall and Reed on Carlsbad situation. Unusual snow, floods threaten. In view probable delays by floods and legal details we advise modification Secretary letter November 28 to authorize letting contracts on Avalon dam and similar works. Also urge immediate authority for purchasing material especially steel and beginning force account work on repairs where delays threaten disaster. Abstract mailed today.

It appears that the local conditions threaten disaster unless work can be begun immediately.

The abstract of title referred to is that of the Pecos Irrigation Company, the purchase of its irrigation system being now under consideration by the Department.

In view of my letter of December 20, showing the necessity for emergency work and the need of working more than eight hours per day; and in view of my letter of December 27, indicating that the United States would not be subject to any risk in entering upon the property of the Pecos Irrigation Company, and also of the discussion in my letter of even date concerning the requirement of the Department of a bond from the Water Users' Association before approving its contract, I recommend that immediate authority be given for beginning the necessary work on force account as an extraordinary emergency, and also for the purchase of the necessary material.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, January 10, 1906.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to your letter of even date herewith, embodying a telegram from Mr. Newell, Chief Engineer of the Reclamation Service, in regard to the conditions relative to the Carlsbad, New

Mexico, project, in which you recommend for reasons stated that immediate authority be given for beginning the necessary work on force account as an extraordinary emergency, and also for the purchase of the necessary material, you are advised as follows:

In Departmental letter of November 28, approving this project and making appropriation from the reclamation fund for its construction, it was specifically stated that the question of title to the property of the Pecos Irrigation Company could not be waived. In an opinion of the Assistant Attorney General, which I approved on the 6th instant, it was suggested that if it was necessary to begin the construction of this work before the abstracts of title could be passed upon that the Pecos Irrigation Company execute a bond to indemnify the United States for any loss or liability occasioned by any defect of such title. By letter of even date herewith I have advised you of the character of the indemnifying bond required of the Pecos Irrigation Company.

In view of these facts, the Department does not feel that it would be justified in authorizing the beginning of work prior to the approval of the abstracts of title or the execution by the Pecos Irrigation Company of the indemnifying bond suggested.

In this connection I desire to say that the Department has done everything it could to expedite this matter without jeopardizing the interests of the Government, and it disavows all responsibility whatever for any delays that may have occurred in initiating work on this project.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, November 1, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (United States v. State of Arizona, 295 U. S. 174) indicated that Section 4 of the Act of June 25, 1910, 36 Stat., 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Carlsbad storage project is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924, 43 Stat., 701.

Section 4 of the Act of June 25, 1910, provides, in effect that after the date of that act no irrigation project to be constructed



under the Act of June 17, 1902, 32 Stat., 388, and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 14, 1935, an allotment of \$1,000,000 was approved for the construction of upstream storage on the Pecos River in New Mexico, which is now available. The water to be impounded in the proposed reservoir will be used on some 25,000 acres of land near Carlsbad, New Mexico, embraced in the Carlsbad Irrigation District which is preparing to enter into a contract with the United States to repay the cost of the work over a term of forty years, without interest.

The project was authorized in 1905 and construction began in 1906. The water supply is obtained from the Pecos River, with storage in the McMillan Reservoir of 39,000 acre feet capacity and the Avalon Reservoir of 6,000 acre feet capacity. The project has an irrigable acreage of 25,055 acres included in the Carlsbad Irrigation District with which the Government has a contract for repayment of the construction cost dated November 14, 1932. Over 90 per cent of the project construction and operation and maintenance charges due to date has been paid.

There is need of additional storage to provide a supplemental water supply upon the lands in this district as for many years the water users have been confronted with threatened losses because of an inadequate supply.

The proposed Alamogordo storage reservoir on the Pecos River will augment the stored supply for the lands in that district, which are solely dependent upon Pecos River water.

It is also proposed to line with concrete certain existing canals or parts of canals on the Carlsbad project. The concrete lining of such canals will serve to decrease seepage losses and will tend to conserve the water supply.

Studies which have been made by the Bureau of Reclamation indicate that the water supply is adequate for the proposed reservoir; that the construction of the proposed dam is feasible from an engineering standpoint; and that the dam can be built and the proposed lining of canals can be accomplished within the cost of \$2,500,000, which the Carlsbad Irrigation District is to agree to pay, so far as expended by the United States.

In an established irrigation community such as this, there is little danger of an inflationary movement in land prices, resulting in sales to outsiders at rising prices, so that the new buyers would

be unable to pay for their land and meet the construction charges.

It is contemplated that the improved water supply which would be afforded by the proposed Alamogordo storage reservoir will be utilized only as a supplementary supply for the 25,055 acres of irrigable area of the existing Carlsbad project.

I find that the project is feasible, that the land watered thereby is adaptable for actual settlement and farm homes, and that the landowners benefited by the project will be able from the agricultural produce of the lands irrigated by the reservoir to return the cost of the development to the United States.

I recommend that the project be approved and that necessary authority be issued to this Department to make contracts for the construction of the project and to proceed with the work.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# CENTRAL VALLEY PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, November 26, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*, 295 U. S. 174) indicated that Section 4 of the Act of June 25, 1910 (36 Stat. 835), is applicable to irrigation projects constructed under the National Industrial Recovery Act and this report on the Central Valley project, California, is made to you under said statute of 1910 and under subsection B of Section 4 of the Act of December 5, 1924 (43 Stat. 702).

Section 4 of the Act of June 25, 1910 (36 Stat. 835), provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto, shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat. 702), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

## GENERAL DESCRIPTION OF PROJECT

The Central Valley project embodies a plan for the conservation, regulation, distribution and utilization of the water resources

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<sup>1</sup> The *Central Valley Project* was initiated under the provisions of the Emergency Relief Appropriation Act of 1935.

of the Sacramento and San Joaquin rivers to provide urgently needed water supplies for existing agricultural, industrial and municipal developments in the Sacramento and San Joaquin valleys and upper San Francisco Bay region which contain 3,000,000 acres of settled irrigated and productive land, and a population of 900,000 persons. In addition to providing new water supplies to meet serious problems of water shortage, the project contemplates the restoration of commercial navigation on the upper Sacramento River, increased flood protection for the valley lands, and incidentally the generation of about a billion and a half kilowatt hours annually of hydroelectric energy.

The key unit of the project is Kennett Reservoir on the Sacramento River. A dam 420 feet high will regulate floods and store three million acre-feet of water. Water released from the reservoir, after generating hydroelectric power, will flow down the Sacramento River, maintaining adequate depths for navigation and furnishing ample supplies for irrigation, municipal and industrial use along the main river and in the fertile delta region of the Sacramento and San Joaquin rivers. Intrusion of salt water from the bay into the delta channels—a frequent occurrence in recent years causing substantial loss in crops and threatening destruction of productivity—will be prevented by the released waters. In addition water supplies will be made available in the delta channels for various uses in the nearby upper San Francisco Bay area, and for utilization in the San Joaquin Valley. Conduits to carry the supplies to these areas are provided. The supply for the San Joaquin Valley will be conveyed up the San Joaquin River through a series of pumping plants and intervening natural and artificial channels a distance of 150 miles lifting the water to an elevation of 160 feet above sea level. This water will replace San Joaquin River water now used for irrigation in the northern San Joaquin Valley, thus permitting the entire flow of the San Joaquin River to be regulated in Friant Reservoir—the second storage unit of the project—and to be utilized in the southern San Joaquin Valley where local supplies are deficient. Water from this reservoir will be delivered by gravity through conduits extending northerly and southerly to serve developed irrigated lands in an area extending from Madera County on the north to Kern County on the south.

The cost of the project, estimated at \$170,000,000, will be met by revenues from the sale of water and power.

### WATER SUPPLY

The sources of water supply for the project are the Sacramento and San Joaquin rivers and their tributaries. The State of California, pursuant to acts of the State Legislature has filed notices of appropriation on the principal streams, which are in good standing. Water supplies studies made by the Department of Public Works of California, U. S. War Department and the U. S. Bureau of Reclamation, indicate on the basis of available data

that the works of the project will provide an adequate water supply for all purposes.

### ENGINEERING FEATURES

The principal engineering features of the project are as follows:

**Kennett Dam Unit**—The Kennett reservoir, the key unit of the project, is located in the Sacramento River near Redding in Shasta County. The dam will be 420 feet high and store 3,000,000 acre-feet of water. A 175,000 k.v.a. power plant will be located below the dam. A reregulating afterbay with a 50,000 k.v.a. power plant will be constructed below the Kennett dam. From the power plants a 200 mile power transmission line will extend to a main distributing substation near Antioch on Suisun Bay.

**Contra Costa Conduit**—A canal, capacity 120 second feet, with pumping plants, will extend westerly from the San Joaquin delta for 50 miles through Contra Costa County to supply municipal, industrial and agricultural water requirements.

**San Joaquin Pumping System**—The works for this pumping system will comprise a dam and other works in Sacramento delta to divert stored water from Kennett reservoir through a channel into San Joaquin delta for salinity control, irrigation and other purposes; dredging of existing channels in the San Joaquin delta; five dams and pumping plants on San Joaquin River to mouth of Merced River; and four pumping plants and 65 miles of canal on the westerly side of San Joaquin Valley which will deliver water to Mendota Weir on San Joaquin River, elevation 160 feet. These works will be capable of furnishing a substituted supply of 1,000,000 acre-feet to 285,000 acres of land now irrigated from San Joaquin River.

**Friant Reservoir**—A dam, 250 feet high, will be constructed on San Joaquin River, which will store 400,000 acre-feet of water which will permit the diversion of San Joaquin River water southward at elevation 467 feet. One and one-half million acre-feet annually on the average will be available for transmission from the reservoir through the means of the San Joaquin River Pumping System and the purchase of water rights in the San Joaquin River.

**Friant-Kern Canal**—The Friant-Kern Canal will extend from Friant Reservoir to Kern River, a distance of 157 miles and will be capable of serving an area of 1,000,000 acres of developed land.

**Madera Canal**—The Madera Canal, maximum capacity 1500 second-feet, will extend from Friant Reservoir to Chowchilla River, a distance of 35 miles and will be capable of furnishing irrigation water to an area of 140,000 acres.

### ESTIMATED COST OF PROJECT

Kennett dam, reservoir and power plants.....	\$84,000,000
Kennett transmission line and substation.....	14,000,000
Contra Costa conduit.....	2,500,000
San Joaquin pumping system.....	19,000,000
Friant dam and reservoir.....	14,000,000
Friant-Kern Canal .....	26,000,000
Madera Canal .....	3,000,000
Rights of way, water rights and general expense.....	8,000,000
Total .....	170,000,000

### FIRST YEAR CONSTRUCTION PROGRAM

Under date of September 10, 1935, you approved an allocation of \$20,000,000 for the Central Valley project, which amount was

later reduced to \$15,000,000. Construction on the following units is recommended for the first year:

Kennett Reservoir Unit  
Contra Costa Conduit  
Friant Dam and Canals

An amount of \$15,000,000 can be efficiently and economically expended on the foregoing units during the first year of construction.

#### ADAPTABILITY OF LAND FOR IRRIGATION, CROP PRODUCTION AND SETTLEMENT

The climate is favorable and the soil, if water is available, is adaptable to the production of a wide variety of crops. The principal crops now raised in the San Joaquin valley are citrus and deciduous fruits, grapes, alfalfa, cotton, nuts, and figs; in the Delta, asparagus, celery, potatoes, as well as deciduous fruits; and in the Sacramento valley there is a heavy production of rice in addition to other grains and deciduous fruits.

The valley is highly developed. The lands are of high value and produce large returns. With an attractive climate, fertile soil and stable markets, water is the one remaining necessity to prosperous, successful agricultural industry. It has been highly successful and supports a large farm population. Much of the fruit is shipped to eastern markets but many other items, such as the products of dairying, are marketed within the state and reduce the quantities imported into the state. Products are largely noncompetitive with other sections of the country, since many of them, such as nuts, figs, raisins, asparagus, are produced almost wholly in California.

Transportation facilities are excellent. These include railroads and improved highways leading to the Metropolitan center of Los Angeles and San Francisco and to eastern markets.

The project is not designed for bringing new lands into cultivation, but for the maintenance of existing agricultural development and existing civilization of a high type. Any increase in irrigated land will be small and will come into being slowly over a long period of time. Part of the water supply is to be obtained by the purchase of water now used for the irrigation of pasture lands and this will result in the retirement from use of 250,000 acres of submarginal land, as compared to a small and gradual increase of irrigated land.

#### SOCIAL AND ECONOMIC VALUES

The economic values of the project are of great magnitude. The project will not bring into production new agricultural areas but will maintain present values and civilization. Of the 3,000,000 acres now irrigated, 1,000,000 face acute water shortage, and

abandonment is proceeding rapidly. The values in jeopardy are large, as without water, not only will lands dry up, but communities will vanish and whole sections return to desert, as is now occurring in the San Joaquin valley. A share of the loss will be suffered by persons not residing in the areas directly affected.

Control of salinity in the delta of the two rivers near Sacramento is part of the agricultural maintenance phase of the project. Here 400,000 irrigated acres with an annual crop value of \$30,000,000 are menaced by salt water from upper San Francisco Bay. Some abandonment has occurred and the whole area is endangered. In this same general area is a large industrial section which is also short of water by reason of increasing salinity. Here 100 industrial plants produce annually \$100,000,000 value of manufactured products, and while not facing extinction, are suffering damage and expense from lack of water.

Navigation on the Sacramento river, one of the important waterways of the nation, has been greatly damaged by low water, navigation having been practically abandoned above Sacramento in the summer season. The national navigation and flood values of the project have been found by the War Department to be \$12,000,000, and the recently enacted Rivers and Harbors Bill (Public No. 409, 74th Congress), by reference to the War Department report approves the project and authorizes the appropriation of \$12,000,000 for it.

A large power house at the main storage dam will produce nearly a billion and a half kilowatt hours of electric energy annually, which will be sold at less than existing rates, thereby benefiting power users and at the same time producing a large revenue, which will go toward the repayment of the construction costs.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The next declaration required is that the cost of construction will probably be returned to the Federal Government. This is interpreted to mean that it will be returned within forty years from the time the Secretary issues public notice that water is available from the project works. The estimated cost of construction is \$170,000,000 and the annual cost including repayment of all other charges is \$7,500,000. It is estimated that annual revenues from the sale of water and of electric power will be sufficient to cover these charges. The favorable conditions heretofore recited justify the belief that the project will return its cost.

I find that the project is feasible from engineering, agricultural and financial standpoints, that it is adaptable for settlement and farm homes, that the estimated construction cost is adequate and that the anticipated revenues will be sufficient to return the cost to the United States.

The Commissioner of Reclamation has approved and recommended the construction of the project. I therefore recommend

the approval of the Central Valley development as a Federal reclamation project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved December 2, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

## FIRST DEFICIENCY APPROPRIATION ACT, 1936

[Extract from] An act making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1936, and prior fiscal years, to provide supplemental appropriations for the fiscal years ending June 30, 1936, and June 30, 1937, and for other purposes. (Act June 22, 1936, 49 Stat. 1622, Public Law 739, 74th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1936, and prior fiscal years, to provide supplemental appropriations for the fiscal years ending June 30, 1936, and June 30, 1937, and for other purposes, namely:

\* \* \* \* \*

Central Valley Project, California: For continuation, \$6,900,000, to remain available until June 30, 1937, of which \$6,000,000 shall be available for construction of Friant Reservoir and irrigation facilities therefrom in the San Joaquin Basin and \$250,000 for administrative expenses (including personal services in the District of Columbia and elsewhere), to be available for the same purposes as those specified for the projects included in the Interior Department Appropriation Act for the fiscal year 1937 under the caption "Bureau of Reclamation" and to be reimbursable under the Reclamation Law: *Provided*, That not to exceed \$25,000 may be expended for personal services in the District of Columbia.

## RIVERS AND HARBORS ACT OF 1937

[Extract from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act August 26, 1937, 50 Stat. 844, 850, Public Law 392, 75th Cong., 1st sess.)

\* \* \* SEC. 2. That the \$12,000,000 recommended for expenditure for a part of the Central Valley project, California, in accordance



with the plans set forth in Rivers and Harbors Committee Document Numbered 35, Seventy-third Congress, and adopted and authorized by the provisions of section 1 of the Act of August 30, 1935 (49 Stat. 1028, at 1038), entitled "An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," shall, when appropriated, be available for expenditure in accordance with the said plans by the Secretary of the Interior instead of the Secretary of War: *Provided*, That the transfer of authority from the Secretary of War to the Secretary of the Interior shall not render the expenditure of this fund reimbursable under the reclamation law: *Provided further*, That the entire Central Valley project, California, heretofore authorized and established under the provisions of the Emergency Relief Appropriation Act of 1935 (49 Stat. 115) and the First Deficiency Appropriation Act, fiscal year 1936 (49 Stat. 1622), is hereby reauthorized and declared to be for the purposes of improving navigation, regulating the flow of the San Joaquin River and the Sacramento River, controlling floods, providing for storage and for the delivery of the stored waters thereof, for the reclamation of arid and semiarid lands and lands of Indian reservations, and other beneficial uses, and for the generation and sale of electric energy as a means of financially aiding and assisting such undertakings and in order to permit the full utilization of the works constructed to accomplish the aforesaid purposes: *Provided further*, That, except as herein otherwise specifically provided, the provisions of the reclamation law, as amended, shall govern the repayment of expenditures and the construction, operation, and maintenance of the dams, canals, power plants, pumping plants, transmission lines, and incidental works deemed necessary to said entire project, and the Secretary of the Interior may enter into repayment contracts, and other necessary contracts, with State agencies, authorities, associations, persons, and corporations, either public or private, including all agencies with which contracts are authorized under the reclamation law, and may acquire by proceedings in eminent domain, or otherwise, all lands, rights-of-way, water rights, and other property necessary for said purposes: *And provided further*, That the said dam and reservoirs shall be used, first, for river regulation, improvement of navigation, and flood control; second, for irrigation and domestic uses; and, third, for power.

## RIVERS AND HARBORS ACT OF 1940

[Extract from] An act authorizing the improvement of certain rivers and harbors in the interest of the national defense, and for other purposes. (Act October 17, 1940, 54 Stat. 1198-1200, Public Law 865, 76th Cong., 3d sess.)

\* \* \* That the following works of improvement of rivers, harbors, and other waterways are hereby adopted and authorized,

to be prosecuted in the interest of the national defense under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans recommended in the respective reports hereinafter designated and subject to conditions set forth therein:

SEC. 2. \* \* \* The second proviso in section 2 of the Act of August 26, 1937 (50 Stat. 844, 850), authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes, is hereby amended to read as follows: *Provided further*, That the entire Central Valley project, California, heretofore authorized and established under the provisions of the Emergency Relief Appropriation Act of 1935 (49 Stat. 115) and the First Deficiency Appropriation Act, fiscal year 1936 (49 Stat. 1622), is hereby reauthorized and declared to be for the purposes of improving navigation, regulating the flow of the San Joaquin River and the Sacramento River, controlling floods, providing for storage and for the delivery of the stored waters thereof, for construction under the provisions of the Federal reclamation laws of such distribution systems as the Secretary of the Interior deems necessary in connection with lands for which said stored waters are to be delivered, for the reclamation of arid and semiarid lands and lands of Indian reservations, and other beneficial uses, and for the generation and sale of electric energy as a means of financially aiding and assisting such undertakings, and in order to permit the full utilization of the works constructed to accomplish the aforesaid purposes.

# COLORADO-BIG THOMPSON PROJECT<sup>1</sup>

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1938

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1938, and for other purposes. (Act August 9, 1937, 50 Stat. 566, 595, Public Law 249, 75th Cong., 1st sess.)

Colorado-Big Thompson project, Colorado: For construction in accordance with the plan described in Senate Document Numbered 80, Seventy-fifth Congress, \$900,000: *Provided*, That no construction thereof shall be commenced until the repayment of all costs of the project shall, in the opinion of the Secretary of the Interior, be assured by appropriated<sup>2</sup> contracts with water conservancy districts, or irrigation districts or water users' associations organized under the laws of Colorado, or other form of organization satisfactory to the Secretary of the Interior;

OFFICE OF THE SECRETARY,  
*Washington, December 20, 1937.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report on the Colorado-Big Thompson project in the State of Colorado is made to you under the provisions of Section 4 of the Act of June 25, 1910 (36 Stat. 835). .

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<sup>1</sup> The *Colorado-Big Thompson Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

<sup>2</sup> So in original.

Section 4 of the Act of June 25, 1910, provides in effect that after the date of that Act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388) and Acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, (43 Stat. 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes and that it will probably return the cost thereof to the United States.

The Colorado-Big Thompson project contemplates the construction of a system of reservoirs, canals, and a pumping plant on the western slope, a long tunnel through the Continental Divide, and a system of reservoirs, canals, and power plants on the eastern slope. By this means, the waters of the Colorado River and certain tributaries will be conserved on the western slope, diverted by tunnel to the eastern slope, re-stored there in a system of reservoirs, and later released to the Poudre, Big Thompson, and South Platte rivers, and to St. Vrain Creek for subsequent distribution through existing canals and ditches to 615,000 acres of land which now have an inadequate water supply.

### WATER SUPPLY

The Colorado River and tributaries feeding the system have an average annual divertible water supply of 320,000 acre feet, derived principally from the spring melting of snows, which will be caught in a reservoir constructed on the Colorado River and will be used almost entirely as a supplemental water supply for the lands on the eastern slope. A replacement reservoir of 152,000 acre feet is to be built on the Blue River, a tributary of the Colorado River, to furnish an ample water supply for vested and future rights for irrigation and power that exist on the Colorado River below the mouth of the Blue River. By this means, the entire supply of 320,000 acre feet, mentioned above, will be made available for eastern slope use.

Reservoirs also will be built on the eastern slope. The storage in these reservoirs and the water diverted from the western slope will provide an adequate supplemental water supply so that the 615,000 acres of land in the project will have a sufficient irrigation supply except in very infrequent seasons. The furnishing of this supplemental supply will permit the raising of crops of a higher per acre value than those grown at present and will, as well, allow the production of more abundant crops.

## ENGINEERING FEATURES AND CONSTRUCTION COST

The principal construction features are as follows:

1. Green Mountain Reservoir on the Blue River for replacement purposes with a capacity of 152,000 acre feet. The reservoir is to be formed by a dam of the compacted earth embankment type with a height of 258 feet above the stream bed and a crest length of 1,000 feet.

2. Granby Reservoir on the Colorado River, six miles northeast of Granby, with an effective storage capacity of 462,000 acre feet. The reservoir is to be formed by a dam of the compacted earth embankment type with a height of 223 feet above the stream bed and crest length of 720 feet.

3. Willow Creek Diversion Canal to divert the waters of Willow Creek, a tributary of the Colorado River, into Granby Reservoir. The canal will have a capacity of 1,000 second feet and a length of 12.6 miles. It traverses mainly open country and involves no difficult construction problems.

4. Shadow Mountain Lake on the Colorado River which is actually an extension to the south of Grand Lake at the mean water surface elevation of Grand Lake. It increases the water surface area of Grand Lake nearly  $2\frac{1}{2}$  times. Shadow Mountain Lake is formed by construction of the North Fork diversion dam downstream from the junction of the Grand Lake outlet with the Colorado River. The maximum height of the dam above the stream bed will be 48 feet, and the main portion of the dam, 350 feet in length, will be of concrete gravity type with a 90-foot overflow section in the center. Siphon spillway sections will flank both ends of the overflow section. Compacted earth sections will connect the concrete sections with higher ground on either side. The dam and spillways will automatically hold the elevation of the water surface of Grand Lake and Shadow Mountain Lake within one foot of the present mean level of Grand Lake. The purpose of Shadow Mountain Lake and Grand Lake is to reduce by about  $7\frac{1}{2}$  miles the length of the Continental Divide tunnel.

5. Granby Pumping Plant and Granby Feeder Canal. As Granby Reservoir lies several miles to the south and at a lower elevation than Shadow Mountain Lake, it is necessary to pump the water from Granby Reservoir through an average lift of 130 feet and convey it by means of a  $4\frac{1}{2}$ -mile canal to Shadow Mountain Lake. The pumping plant, located on the northeast shore of Granby Reservoir, will contain 3 electrically driven units, each of 290 s.f. capacity. The canal from the pumping plant to Shadow Mountain Lake will have a normal capacity of 800 s.f.

6. Continental Divide Tunnel, 13.1 miles in length,  $9\frac{1}{2}$  feet in diameter, and 550 s.f. capacity. The inlet portal will be located about 800 feet from the east shore line of Grand Lake and 700 feet west of the western boundary of Rocky Mountain National Park. The outlet portal is east of the eastern boundary of the park, but on land that is authorized to be taken into the park. The tunnel runs in a general northeasterly direction. It will be excavated entirely from the two portals, and the excavated material will be carefully piled and the natural scenic beauty will be retained by terracing, landscaping and planting.

7. Power Canal and Power Plant No. 1. A conduit of approximately 5.4 miles in length and 550 s.f. capacity, connects the east portal of the Continental Divide tunnel with Power Plant No. 1. The section on the lands that may be taken into the park will be entirely underground. The power plant, located  $\frac{1}{2}$  mile east of the town of Estes Park, Colorado, will contain two 15,000 k.v.a. generating units operating under a static head of 746 feet. The average annual output of the plant is estimated to be 207,000,000 k.w.h. of which the Granby Pumping Plant will require 48,000,000 k.w.h. The balance of the power will be available for commercial purposes.

8. Carter Lake, Horsetooth, and Arkins Reservoirs. Carter Lake Reservoir will be located 8 miles west of Berthoud, Horsetooth Reservoir 5 miles west of Fort Collins, and Arkins Reservoir 6 miles northwest of Loveland. The total capacity of the three reservoirs will be 256,000 a.f. The dams forming the reservoirs are to be of compacted earth embankment type having a maximum height of 190 feet above stream bed and a maximum crest length of 1,500 feet.

9. Canals, diversion works, and other features to convey the water from pumping plant No. 1 to the three reservoirs and to the existing supply canals. Until the power system is fully developed, water from power plant No. 1 will flow down the Big Thompson River for a distance of about 15 miles and then be diverted through canals to the three reservoirs. Canals also will extend from the reservoir outlets to existing distribution works on the project.

10. Five additional power plants to be installed as the power market becomes available. One of these plants will be located on the North Fork of the Thompson River and three others on the main channel of the Big Thompson River. When these plants are installed, a canal will be built along one bank or the other of the Big Thompson River to provide the necessary drop for developing power at the various plants. The fifth plant will be built at the Green Mountain dam. The costs of all power plants and other features properly allocable thereto will be repaid from power revenues.

The estimated costs of original construction are as follows:

Green Mountain Reservoir.....	\$3,776,032
Granby Reservoir .....	2,813,703
Willow Creek Feeder Canal.....	733,203
North Fork Diversion Dam.....	483,928
Granby Pumping Plant and Feeder Canal.....	1,667,553
Continental Divide Tunnel .....	7,271,371
No. 1 Power Plant and Canal.....	2,879,000
Carter Lake, Horsetooth, and Arkins Reservoirs..	7,409,597
Canals, diversion works, and other features.....	4,628,385
Total .....	31,702,772

Of this cost \$6,902,772 has been tentatively allocated to the power development leaving \$24,800,000 to be repaid by the irrigation interests. Except for the equitable allocation of costs to power development, no credit or revenues from power sales will be made to the irrigators but all will be retained by the United States.

#### LAND PRICES

The project will furnish a supplemental water supply for an area of 615,000 acres of land, lying in the South Platte River Basin in Colorado. These farm lands are now under cultivation, are highly improved, and are served with a complete distribution system of canals, reservoirs, and lateral ditches of an estimated value of \$35,000,000.

Practically all lands are now under or subject to irrigation, but due to droughts and lack of an adequate and dependable supply of water, annual crop losses are excessive and can be avoided only by a supplemental supply of water furnished to the project. This project seems to be the only feasible source for this additional water.

#### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The lands embraced in the project are of high fertility and capable, when sufficiently supplied with irrigation water, of supporting a much larger population. The furnishing of the supplemental supply contemplated in the Colorado-Big Thompson proj-

ect will enable the farmers to grow diversified crops. It is expected that this will result in the farms being broken up into smaller units, thus providing homes for settlers from arid lands in the vicinity who are now suffering the loss of lands and homes by reason of drought conditions.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The payment of construction costs will be derived from the sale of water for irrigation purposes and the sale of electrical energy. The repayment contracts which will be executed with a water conservation or irrigation district will provide for payment of the construction costs that are allocated to irrigation features from revenues obtained from two sources: one by means of direct taxation of all property within the district and the other by the sale of water for supplemental use on those lands to which water is allotted by the districts. These latter payments will be secured by tax liens on the farms receiving benefits of water from the project.

The history of tax collections in the district during the past ten years shows an annual tax collection of 98%. The plan proposed for the collection of water charges contemplates a possible surcharge of 50% of taxes to cover defaults and deficiencies.

Nearly all the lands are in private ownership. The average holdings are 96 acres per farm. With the increased water supply, many of the farms will undoubtedly be divided into smaller units. No control of land prices is planned since all are now settled and farmed. Land values now range from \$50 to \$200 per acre.

It is considered that the means proposed for repayment of construction charges will provide ample security and sufficient funds for the return of costs of construction.

#### OBJECTIONS TO THE PROJECT

Attention has been given to the objections to this project by various persons and organizations interested in national parks. On November 12, 1937, I held a hearing which was well attended by the proponents and opponents of the project who were given an opportunity for open discussion. Regardless of the point of view of those who would preserve national parks unimpaired, the Organic Act which established Rocky Mountain National Park, approved January 26, 1915, reserved the right to utilize the park for irrigation purposes as follows:

The United States Reclamation Service may enter upon and utilize for flowage or other purposes any area within said park which may be necessary for the development and maintenance of a Government reclamation project.

Congress again expressed its will when it authorized the construction of the project and appropriated \$900,000 in the Department of the Interior Appropriation Bill approved August 9, 1937.

Certain agreements which will benefit the park have been entered into informally and will be made binding before the commencement of the construction. These agreements involve the furnishing of a firm supply of water from the project to the park; free electricity for Government purposes; abstention from construction work within the park boundaries; and the right of the Park Service to pass upon plans and specifications where lands authorized to be added to the park are involved.

The objections of the persons on the western slope of the Rocky Mountains from whose watershed the water will be diverted to the eastern slope were withdrawn when the plans provided for a compensatory reservoir on the western slope where feasible.

At the conclusion of the morning hearings on November 12, after the principal arguments had been presented for and against the project, I made a statement summing up the situation which is faced by the Secretary of the Interior and the President. I am enclosing a copy of this statement for your information.

#### FINDINGS REGARDING FEASIBILITY OF PROJECT

In view of all of the circumstances, the changes in the plans, and the care which will be exercised to avoid injury to the park, I find that the project is feasible from an engineering and economic standpoint and so declare.

In order to prevent the abandonment of developed lands, and also to improve economic conditions involving a population of 175,000 people in northeastern Colorado, I recommend that construction of the Colorado-Big Thompson project be approved and that construction be started at an early date.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved December 21, 1937.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*



# COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

## RIVER AND HARBOR IMPROVEMENTS AUTHORIZED

[Extracts from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act March 3, 1925, 43 Stat. 1186, 1198, Public Law 585, 68th Cong., 2d sess.)

\* \* \* That the following works of improvement are hereby adopted and authorized, to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans recommended in the reports hereinafter designated:

\* \* \* \* \*

SEC. 16. (a) That there is hereby authorized to be appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, the sum of \$650,000, or so much thereof as may be necessary, to reimburse the reclamation fund for the benefit of the Yuma Federal irrigation project in Arizona and California for all costs, as found by the Secretary of the Interior, heretofore incurred and paid from the reclamation fund for the operation and maintenance of the Colorado River front work and levee system adjacent to said project.

(b) That there is hereby authorized to be appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, the sum of \$50,000, or so much thereof as may be necessary, to be transferred to the reclamation fund and to be expended under the direction of the Secretary of the Interior for the purpose of paying the operation and maintenance costs of said Colorado River front work and levee system adjacent to said Yuma project, Arizona-California, for the fiscal year ending June 30, 1926.

(c) That there is hereby authorized to be appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, for the fiscal year ending June 30, 1927, and annually thereafter, the sum of \$35,000, or so much thereof as may be necessary as the share of the Government of the United States of the costs of operating and maintaining said Colorado River front work and levee system.

## RIVERS AND HARBORS IMPROVEMENTS AUTHORIZED

[Extract from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act January 21, 1927, 44 Stat. 1010, 1021, Public Law 560, 69th Cong., 2d sess.)

\* \* \* That the following works of improvement are hereby adopted and authorized, to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans recommended in the reports herein-after designated:

\* \* \* \* \*

That there is hereby authorized to be appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, for the fiscal year ending June 30, 1928, and annually thereafter, the sum of \$100,000, or so much thereof as may be necessary, to be spent by the Reclamation Bureau under the direction of the Secretary of the Interior, to defray the cost of operating and maintaining the Colorado River front work and levee system adjacent to the Yuma Federal irrigation project in Arizona and California.

## PROVISIONS OF SECOND DEFICIENCY ACT, 1932

[Extract from] An act making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1932, and prior fiscal years, to provide supplemental appropriations for the fiscal years ending June 30, 1932, and June 30, 1933, and for other purposes. (Act July 1, 1932, 47 Stat. 525, 535, Public Law 235, 72d Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any moneys in the Treasury not otherwise appropriated, to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1932, and prior fiscal years, to provide supplemental appropriations for the fiscal years ending June 30, 1932, and June 30, 1933, and for other purposes, namely:

\* \* \* \* \*

Palo Verde Valley, California, flood protection: For the protection of the Palo Verde Valley, California, from overflow and destruction by Colorado River floods, to be expended under the direction of the Secretary of the Interior for the purpose of repairing and reconstructing the levee system on the Colorado River in front of the said Palo Verde Valley, fiscal year 1933, \$50,000, or so much thereof as may be necessary.

## COLORADO RIVER ANNUAL APPROPRIATION FOR FRONT WORK

An act to authorize defraying cost of necessary work between the Yuma project and Boulder Dam. (Act July 1, 1940, 54 Stat 708, Public Law 697, 76th Cong., 3d sess.)

\* \* \* That the provision of the Act entitled "An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," approved January 21, 1927, is amended to read as follows:

There is hereby authorized to be appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, for the fiscal year ending June 30, 1928, and annually thereafter, the sum of \$100,000, or so much thereof as may be necessary, to be spent by the Reclamation Bureau under the direction of the Secretary of the Interior to defray the cost of operating and maintaining the Colorado River front work and levee system adjacent to the Yuma Federal irrigation project in Arizona and California and to defray the cost of other necessary protection works and systems along the Colorado River between said Yuma project and Boulder Dam.

## PROVISIONS OF FIRST DEFICIENCY APPROPRIATION ACT, 1944

[Extract from] An act making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1944, and for prior fiscal years, to provide supplemental appropriations for the fiscal year ending June 30, 1944, and for other purposes. (Act April 1, 1944, 58 Stat. 150, 157, Public Law 279, 78th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1944, and for prior fiscal years, to provide supplemental appropriations for the fiscal year ending June 30, 1944, and for other purposes:

\* \* \* \* \*

Colorado River front work and levee system: For an additional amount for the Colorado River front work and levee system, \$250,000, to be available for the construction, operation, and maintenance of a temporary weir in the Colorado River below the heading of the diversion canal for the Palo Verde Irrigation District, California: *Provided*, That the construction, operation, or maintenance of said weir shall not be deemed a recognition of any obligation or liability whatsoever on the part of the United

States; and no part of said sum or other funds of the United States shall be expended for the construction, operation, or maintenance of said weir after six months from the date of the termination of the present war, as determined by proclamation of the President or concurrent resolution of the Congress.

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1946

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1946, and for other purposes. (Act July 3, 1945, 59 Stat. 318, 343, Public Law 123, 79th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1946, namely:

\* \* \* \* \*

### COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

To defray the cost of operating and maintaining the Colorado River front work and levee system adjacent to the Yuma Federal irrigation project in Arizona and California, and to defray the cost of other necessary protection works along the Colorado River between said Yuma project and Boulder Dam, as authorized by the Act of July 1, 1940 (Fifty-fourth Statutes, page 708), to be immediately available, \$112,500, which, together with the appropriation for this purpose in the Interior Department Appropriation Act, 1945, shall remain available until June 30, 1947, and of which not to exceed \$95,000 may be expended for the purchase of lands subject to seepage or overflow and improvements thereon: *Provided*, That the expenditure of any moneys for the purchase of said lands and improvements or for remedial or other necessary works for the protection of public or private property in or near the city of Needles, California, shall not be deemed a recognition of any obligation or liability whatsoever on the part of the United States: *Provided further*, That any moneys received by the United States as reimbursement in accordance with contracts heretofore entered into under the authority of the act of December 21, 1928 (Forty-fifth Statutes, page 1057), as amended, and ratified by the act of August 30, 1935 (Forty-ninth Statutes, page 1028), for work in or near said city of Needles, shall be covered into the Treasury as miscellaneous receipts.

## PROTECTION WORK BETWEEN YUMA PROJECT AND BOULDER DAM

An act to amend the laws authorizing the performance of necessary protection work between the Yuma project and Boulder Dam by the Bureau of Reclamation. (Act June 28, 1946, 60 Stat. 338-339, Public Law 469, 79th Cong., 2d sess.)

That the provision of the Act entitled "An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," approved January 21, 1927 (44 Stat. 1010, 1021), amended by the Act entitled "An Act to authorize defraying cost of necessary work between the Yuma project and Boulder Dam," approved July 1, 1940 (54 Stat. 708), is hereby further amended to read as follows:

That for the purpose of controlling the floods, improving navigation, and regulating the flow of the Colorado River, there is hereby authorized to be appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, for the fiscal year ending June 30, 1928, and annually thereafter, such sums as may be necessary, to be spent by the Bureau of Reclamation under the direction of the Secretary of the Interior, to defray the cost of (a) operating and maintaining the Colorado River front work and levee system in Arizona, Nevada, and California; (b) constructing, improving, extending, operating, and maintaining protection and drainage works and systems along the Colorado River; (c) controlling said river, and improving, modifying, straightening, and rectifying the channel thereof; and (d) conducting investigations and studies in connection therewith: *Provided*, That the expenditure of moneys for any of the foregoing purposes shall not be deemed a recognition of any obligation or liability whatsoever on the part of the United States: *Provided further*, That, within the discretion of the Secretary of the Interior, local communities to be benefited by works constructed pursuant to this Act may be required to provide, without cost to the United States, necessary rights-of-way and maintenance of the completed works and assurance, satisfactory to him, of payment of valid claims arising out of damage caused to persons or property by reason of the construction, operation, or maintenance of any such works: *Provided further*, That any moneys received by the United States as reimbursement in accordance with contracts heretofore entered into under the authority of the Act of December 21, 1928 (45 Stat. 1057), as amended, and ratified by the Act of August 30, 1935 (49 Stat. 1028, 1039), for expenditures made under the authority of this paragraph, shall be covered into the Treasury as miscellaneous receipts. In connection with operations conducted under this paragraph, the Secretary of the Interior shall have the same authority with respect to (a) the acquisition, exchange and disposition of lands, interests in lands, water rights and other property, and the relocation thereof; (b) the utilization of lands owned or acquired by the United States; (c) construction and supply contracts; (d) the performance of necessary or proper acts; and (e) the making of necessary or proper rules and regulations, which he has in connection with projects under the Federal reclamation laws, Act of June 17, 1902 (32 Stat. 388), and Acts amendatory thereof or supplementary thereto. Nothing contained in this paragraph shall be deemed to amend, repeal, or otherwise affect the provisions contained in the First Deficiency Appropriation Act, 1944, under the caption "Department of the Interior, Bureau of Reclamation—Colorado River front work and levee system" (58 Stat. 150, 157).

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1948

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1948, and for other purposes. (Act July 25, 1947, 61 Stat. 460, Public Law 247, 80th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated for the Department of the Interior for the fiscal year ending June 30, 1948, namely:

\* \* \* \* \*

## COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

For operating and maintaining the Colorado River front work and levee system in Arizona, Nevada, and California; constructing, improving, extending, operating, and maintaining protection and drainage works and systems along the Colorado River; controlling said river and improving, modifying, straightening, and rectifying the channel thereof; and conducting investigations and studies in connection therewith; as authorized by Public Law 469, approved June 28, 1946; \$1,000,000, to remain available until expended.

# COLORADO RIVER-TEXAS PROJECT<sup>1</sup>

MARCH 15, 1935.

Memorandum for the SECRETARY.

Subject: Colorado River Development, Texas, Docket No. 380.

I regret the delay in replying to your memorandum of March 2. It has been deferred until I could consult the files from your office and hear from Colonel Hunt.

The reports indicate that there is an adequate supply of water for the power development proposed and for the irrigation of a considerable area of rice land. Because of extreme fluctuations in its discharge, the use of the river depends on adequate storage. This the plans for development provide.

To secure the best economic results from power development, the fundamental idea should be public control of power generation and distribution. This can be accomplished through a legally constituted State authority as the plans contemplate, or by the ownership and operation of these works by the Federal Government. There may be constitutional objection to this procedure. The rates to be charged for electrical energy so generated should be approved by the United States.

With the regulation of the river through storage, there will be made available for irrigation enough water to irrigate about 125,000 acres of rice land along the lower reaches of the river. It is understood that this irrigation will be profitable, but unless the conditions under which water is to be delivered and the price to be paid for it are fixed in advance, great difficulty may be encountered in reaching an agreement with irrigators as to the price to be paid for water or in inducing them to enter into contracts under which they will be definitely obligated to pay for the water diverted.

I believe this development will result in valuable economic benefits to the region; that so far as the power development is concerned the plans proposed will make it a solvent undertaking. There remains to be determined how far irrigation is to form a

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<sup>1</sup> The *Colorado River-Texas Project* was initiated under the provisions of the Emergency Relief Appropriation Act of 1935, pursuant to approval of the flood control project of the Lower Colorado River Authority of Texas by the President and the Advisory Committee on Allotments on May 21, 1935.

part of this scheme, and the steps to be taken to insure an income from the users of water in irrigation.

(Signed) ELWOOD MEAD,  
*Commissioner.*

RESOLUTION ADOPTED MAY 21, 1935, BY  
PRESIDENT AND ADVISORY COMMITTEE ON ALLOT-  
MENTS, COLORADO RIVER PROJECT, TEXAS

Whereas the project of the Lower Colorado River Authority (Texas) for the improvement of that River will control substantially its flood waters and reclaim many thousands of acres now subject to destructive floods, as more fully appears by the report of the Army Engineers (House Document 361, 71st Cong., 2d Sess.) and by memorandum dated April 26, 1935, signed by the Acting Deputy Administrator of Public Works;

Whereas the project as submitted to the Federal Emergency Administration of Public Works by the Authority includes the completion of the incomplete dam, reservoir and other works at and near Bluffton, Llano County, Texas (Hamilton Dam), a unified system and series of dams at and below that site, impounding reservoirs, hydroelectric works, works for irrigation and other uses, transmission lines and other appurtenances;

Whereas it appears from the records of the Texas Relief Commission, period April 1, 1934, to November 30, 1934, that the total number of relief cases within a fifty mile radius of Hamilton Dam, plus Bexar County, Texas, during said period was 23,997, that the number of persons dependent on relief therein aggregated 95,442, and it is estimated that the man hours required at sites for the accomplishment of the project amount to 15,000,000 and the total number of men employed at any one time will be 4,400 and not less than 80% of the total cost of the project will be expended by July 1, 1936, and the remaining 20% will be applied to finance contracts for the fabrication of materials, under which contracts men will be put to work prior to July 1, 1936;

Whereas the estimated cost of said project is \$20,000,000 as more fully appears by said memorandum and an aggregate allocation of that amount is recommended by the Secretary of the Interior and the Federal Emergency Administrator of Public Works;

*Resolved*, That the President and this Board allocate to the Department of the Interior, Bureau of Reclamation, the sum of \$5,000,000 to aid in financing that portion of the project relating to flood control from funds made available to the President by Section 1 (h) of the Emergency Relief Appropriation Act of 1935;

*Resolved further*, That the President and this Board allocate to the Federal Emergency Administration of Public Works \$15,000,000 to finance that portion of the cost of the project not provided for by the above allocation. This allocation is from funds made available to the President by Section 1 (g) of said Act. Such allotment therefrom as may be made by the said Administrator to the Authority is to be by loan and grant; the grant not to exceed 30% of the cost of labor and materials employed upon the project (except that part apportioned to flood control); the loan to be by purchase of the revenue bonds of the Authority, subject to the execution of a contract, satisfactory to the Administrator, between the United States of America and the Authority.

Said contract is to provide that the plans, specifications and construction of the project in so far as they relate to flood control shall be subject to the



approval of the Commissioner of Reclamation, as shall also vouchers for expenditures against the allocation for flood control.

The President and this Board find upon the basis of said memorandum that not less than 25% of such loan and grant is to be expended for work under the said project.

## RIVERS AND HARBORS IMPROVEMENTS AUTHORIZED

[Extract from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for ther purposes. (Act August 26, 1937, 50 Stat. 844, 850-851, Public Law 392, 75th Cong., 1st sess.)

\* \* \* SEC. 3. That for the purpose of improving navigation, controlling floods, regulating the flow of streams, providing for storage and for delivery of stored waters, for the reclamation of lands, and other beneficial uses, and for the generation of electric energy as a means of financially aiding and assisting such undertaking, the project known as "Marshall Ford Dam," Colorado River project, in Texas, is hereby authorized and adopted and all contracts and agreements which have been executed in connection therewith are hereby validated and ratified, and the Secretary of the Interior, acting through such agents as he may designate, is hereby authorized to construct, operate, and maintain all structures and incidental works necessary to such project, and in connection therewith to make and enter into any and all necessary contracts including contracts amendatory of or supplemental to those hereby validated and ratified.

# COLUMBIA BASIN PROJECT<sup>1</sup>

BUREAU OF RECLAMATION,  
*Denver, Colorado, January 7, 1932.*

From: Chief Engineer  
To: Commissioner, Washington, D. C.  
Subject: Report on proposed Columbia Basin project, Washington.

1. Transmitted herewith is a report prepared in the Denver office on the proposed Columbia Basin project.

2. The report shows that the investment in the dam and power plant will be repaid under the conditions assumed in 50 years with interest at 4 per cent and leave a substantial surplus for repaying about one half of the investment without interest ultimately required in the entire irrigation development. With this surplus power revenue available for liquidating a portion of the investment in the irrigation development, and on the basis of the estimates and conclusions reached in the report, I believe the Columbia Basin project is physically and financially feasible. With the completion of the power development the irrigation development may proceed at such time and in units of such size as economic conditions may justify.

3. The postponement of the irrigation development will increase, rather than detract, from the economic feasibility of the power development except as such irrigation development affects the power market.

(Signed) R. F. WALTER.

## RIVERS AND HARBORS ACT OF 1935

[Extract from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act August 30, 1935, 49 Stat. 1028, 1039-1040, Public Law 409, 74th Cong., 1st sess.)

\* \* \* SEC. 2. That for the purpose of controlling floods, improving navigation, regulating the flow of the streams of the United

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<sup>1</sup> The *Columbia Basin Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

States, providing for storage and for the delivery of the stored waters thereof, for the reclamation of public lands and Indian reservations, and other beneficial uses, and for the generation of electric energy as a means of financially aiding and assisting such undertakings, the projects known as "Parker Dam" on the Colorado River and "Grand Coulee Dam" on the Columbia River, are hereby authorized and adopted, and all contracts and agreements which have been executed in connection therewith are hereby validated and ratified, and the President, acting through such agents as he may designate, is hereby authorized to construct, operate, and maintain dams, structures, canals, and incidental works necessary to such projects, and in connection therewith to make and enter into any and all necessary contracts including contracts amendatory of or supplemental to those hereby validated and ratified. The construction by the Secretary of the Interior of a dam in and across the Colorado River at or near Head Gate Rock, Arizona, and structures, canals, and incidental works necessary in connection therewith is hereby authorized, and none of the waters, conserved, used, or appropriated under the works hereby authorized shall be charged against the waters allocated to the upper basin by the Colorado River compact, nor shall any priority be established against such upper basin by reason of such conservation, use, or appropriation; nor shall said dam, structures, canals, and works, or any of them, be used as the basis of making any such charge, or establishing any such priority or right, and all contracts between the United States and the users of said water from or by means of said instrumentalities shall provide against the making of any such charge or claim or the establishment of any priority right or claim to any part or share of the water of the Colorado River allocated to the Upper Basin by the Colorado River compact, and all use of said instrumentalities shall be in compliance with the conditions and provisions of said Colorado River compact and the Boulder Canyon Project Act.

## THE COLUMBIA BASIN PROJECT ACT

[Extract from] An act to amend the act approved May 27, 1937 (ch. 269, 50 Stat. 208), by providing substitute and additional authority for the prevention of speculation in lands of the Columbia Basin project, and substitute and additional authority related to the settlement and development of the project, and for other purposes. (Act March 10, 1943, 57 Stat. 14-20, Public Law 8, 78th Cong., 1st sess.)

\* \* \* That the Act of May 27, 1937 (ch. 269, 50 Stat. 208), is hereby amended to read as follows:

SECTION 1. In addition to the primary purposes for which the Grand Coulee Dam project (hereafter to be known as the Columbia Basin project and herein

called the "project") was authorized under the provisions of the Act of August 30, 1935 (49 Stat. 1028), the project is hereby authorized and reauthorized as a project subject to the Reclamation Project Act of 1939; and the provisions of each of those two Acts together with the provisions of this Act shall govern the repayment of expenditures and the construction, operation, and maintenance of the works constructed as a part of the project. \* \* \*

OFFICE OF THE SECRETARY,  
*Washington 25, D. C., June 3, 1948.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: Transmitted herewith is a report on a plan for the development of the water resources of the Columbia River Basin, submitted in accordance with the provisions of the Reclamation Project Act of 1939 (53 Stat. 1187). The report was prepared as a Departmental undertaking, under the sponsorship of the Bureau of Reclamation. Enclosed with the report are comments which have been received from the affected States of Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming, and from the Secretary of War. These comments have been obtained as required by the provisions of Section 1 of the Flood Control Act of 1944 (58 Stat. 887), and by the Act of August 14, 1946 (60 Stat. 1080). In addition, there are enclosed copies of comments which have been obtained from the Department of Agriculture and the Federal Power Commission.

The report of the Commissioner of Reclamation which I have approved today provides a comprehensive plan for the development of all phases of the water resources of the Columbia River Basin. It is an integrated plan showing the relationships between the needs and possibilities for irrigation, flood control, power, navigation, pollution abatement, recreation, fish and wildlife and other types of development to control and utilize the water resources.

The report recommends the authorization of a group of eleven projects to be included in the next stage of development, and provides for the establishment of a Columbia Basin Account for the purpose of utilizing power revenues from Federal projects in the basin to assist in the repayment of construction costs of desirable projects which could not otherwise be constructed. The plans which have been worked out therefore represent a substantial step forward in the integration of planning, and proposed construction and operation, to meet all requirements, an objective we must keep constantly in mind.

The need for the projects which are recommended is clearly

illustrated by the fact that since my proposed report was issued in March 1947, the Congress has appropriated construction funds for the Hayden Lake Unit of the Rathdrum Prairie Project which was originally included in the recommendations. Further evidence of the need for these projects is the recent passage by the Congress of special bills to authorize the Kennewick Division of the Yakima Project. The projects which comprise the balance of the list which is proposed for immediate authorization are equally needed, and in certain cases will have an even more profound effect upon the use and control of the water resources, and upon the economic development of the Columbia Basin.

Over and beyond these requirements for the orderly development of the basin, you asked, in your letter of June 1, 1948, that I review my report in the light of the present flood situation in the Columbia River Basin with a view of preventing repetition of similar disasters, and asked that I collaborate with the Secretary of the Army in that connection. Conferences between the Bureau of Reclamation and the Corps of Engineers have already been initiated toward the end of developing a special list of projects which will give particular emphasis to the control of floods.

Such a program may be developed within the general framework of the comprehensive plan presented in my report by selection of those projects which are essential to provide any desired degree of flood protection. Further, because of the comprehensive character of the report those projects may be selected with assurance that they will complement rather than conflict with, or jeopardize, the over-all development of the basin.

Since consideration of the experiences of the present flood, tragic as they are, should be evaluated in the preparation of any program to provide adequate flood protection, and since the execution of any such program will require construction of projects by both the Corps of Engineers and the Bureau of Reclamation, these two agencies have initiated jointly preparation of a recommendation to you pursuant to your instructions to us of June 1. The projects to be included in that recommendation will be presented to you at the earliest possible moment and will supplement and add to the protection to be provided by the projects recommended in this report. Presumably, the program will be carried to fruition through your good offices, and it is my thought that it would be in order, and appropriate, for you to transmit these programs to the Congress for its prompt consideration.

Unless you have objection, the report and other documents enclosed will be transmitted promptly to the Congress in accordance with the provisions of the Reclamation Laws. This is especially desirable in view of the fact that certain of the reservoirs which are recommended for authorization in this report are likely to be included in any joint program for flood control that may be developed with the Corps of Engineers.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

UNITED STATES DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION,  
*Washington 25, D. C., December 29, 1948.*

Memorandum

To: Secretary J. A. Krug

From: Commissioner

Subject: Report on finding of feasibility, units R-7, R-8, and R-9—Grand Coulee powerplant—Columbia Basin Project, Washington.

Transmitted herewith are a report and findings, under the authority of section 9 of the Reclamation Project Act of 1939 (53 Stat. 1187), with respect to the proposed installation of three additional 108,000-kva generating units as supplemental works of the Grand Coulee powerplant, Columbia Basin Project.

Authorization of the Columbia Basin Project by various acts of Congress and the original allocation report (H. Doc. No. 172, 79th Cong., 1st sess.) were predicated on the installation of fifteen main generating units and three station service generating units at the Grand Coulee powerplant. Penstocks and powerhouse space have been provided, however, for 18 main units to enable use of future upstream storage above the Franklin D. Roosevelt Reservoir created by the Grand Coulee Dam.

With a system consisting of Hungry Horse, Grand Coulee, McNary, Bonneville, and Detroit dams, all of which are existing or under construction, the increase in nominal prime power at Grand Coulee, with the three additional units and with the benefit of Hungry Horse storage, amounts to 160,000 average kilowatts. This increase in prime power is equivalent to 204,400 kilowatts of salable firm power at 75 per cent load factor, after reflecting losses of 7 per cent and a diversity factor of 1.03. In order to generate such additional firm power, the three additional units are necessary because of the load factor at which the power has to be delivered.

The report shows that all costs of installing, operating, and maintaining the additional units and related facilities at Grand Coulee Dam can be met from the revenues from increased production of power and that, in addition, a substantial surplus of revenues will be available and adequate to cover reasonable payments to the Hungry Horse Project on account of downstream benefits. For the purposes of this report, all of these costs have been assumed to be properly chargeable to commercial power production.

Incremental revenues to be derived during a repayment period of 50 years, which has been adopted for the purposes of this report, by virtue of the installation of the three additional generating units and the use of Hungry Horse storage, are estimated at \$86,450,000, an amount substantially greater than the revenue requirements of subsection 9(c) of the Reclamation Project Act of 1939. Total costs required to be returned pursuant to subsection

9(a) of said Act over the same period for construction, interim replacements, operation, and maintenance are estimated to be \$32,053,000. The excess of the revenues over these costs is \$54,397,000. This balance is substantially in excess of the amount that would be required to return interest of \$15,423,000 for the period, computed at the rate of three per cent per annum on the unamortized balances of the construction costs of the three units, and estimated reasonable payments to the Hungry Horse Project on account of downstream benefits.

From the report, as summarized above, I find that, within the meaning of section 9 of the Reclamation Project Act of 1939, the proposed supplemental works are feasible as a matter of engineering; that the estimated costs are, for the purposes of this report, properly chargeable to commercial power production; and that these costs will probably be returned to the United States from the additional power revenues that will result from increased power production. I find further that these works, being for the purposes of this report treated as allocable to commercial power production, are not works for irrigation and purposes incidental thereto within the meaning of subsection 1(c) of the act of December 22, 1944 (58 Stat. 887). It follows that on your approval of this report and submission of it to the President and to the Congress, the works may be regarded as authorized under the provisions of section 9 of the Reclamation Project Act of 1939.

Problems with respect to the handling and disposition of the revenues attributable to these works are present. These will be dealt with by arrangements to be made between the Bureau of Reclamation and the Bonneville Power Administration, subject to your approval.

I recommend that you approve and adopt this report and the findings herein made and that you submit them, together with this letter, to the President and the Congress.

(Signed) MICHAEL W. STRAUS.

Approved and adopted January 5, 1949,

(Signed) J. A. KRUG,

*Secretary of the Interior.*

## REPORT ON FEASIBILITY OF ADDITIONAL GENERATING CAPACITY AT GRAND COULEE DAM

### PART I—HISTORICAL AND LEGISLATIVE BACKGROUND

This report, made under the provisions of section 9 of the Reclamation Project Act of 1939 (53 Stat. 1187), concerns the engineering and financial feasibility of the proposed addition of

three main generating units to the presently authorized powerplant at Grand Coulee Dam.

A finding of feasibility and allocation of costs of the Columbia Basin Project, including a 15-generating unit powerplant installation, was made in the allocation and repayment report entitled "Report on the Columbia Basin Project on the Columbia River," which was printed as House Document No. 172, 79th Congress, 1st session. The authorized project found feasible in that report included powerhouse space, penstocks, and other structural facilities for an ultimate powerhouse installation of 18 main generating units. In making the previous feasibility finding, however, the turbines, generators, switchyard installations, and accessory electrical equipment for the last three of the 18 units were excluded from consideration, since insufficient reservoir storage was then available for the most effective utilization of an 18-unit powerplant installation.

With congressional authorization in June 1944 of Hungry Horse Dam on the Flathead River in Montana (58 Stat. 270), a source of additional reservoir storage upstream from Grand Coulee Dam became potentially available. Construction of Hungry Horse Dam has already begun. Regulated releases of water stored within its reservoir will render practicable substantial increases in power production at many downstream powerplants, including Grand Coulee Dam. The three additional generating units, R-7, R-8, and R-9, which are discussed in this report, are the additional Columbia Basin Project facilities necessary to make the most effective and financially productive use of storage water releases from Hungry Horse Reservoir.

The proposed supplemental power facilities will be a part of the Columbia Basin Project. Construction of the Columbia Basin Project was started in 1933 with a Public Works allotment made pursuant to the authority of Title II of the act of June 16, 1933 (48 Stat. 195, 200). Construction of the Grand Coulee Dam Project was later specifically authorized in the Rivers and Harbors Act of 1935 (49 Stat. 1028, 1039).

In 1943 the Columbia Basin Project Act (57 Stat. 14) was enacted, renaming the project the "Columbia Basin Project," and reauthorizing it as a project subject to the Reclamation Project Act of 1939. As required by the 1939 Act, the feasibility finding and allocation report previously mentioned (H. Doc. No. 172, 79th Cong., 1st sess.) was made, approved by the Secretary of the Interior, and transmitted to the President and to the Congress.

All power generated at Grand Coulee Dam, in excess of requirements for operation and construction of the project, is marketed by the Bonneville Power Administration under the provisions of Executive Order No. 8526 of August 26, 1940.

## Part II—DESCRIPTION OF PROPOSED SUPPLEMENTAL FACILITIES

Basic features of the Columbia Basin Project include Grand Coulee Dam, 95 miles west of Spokane, twin powerplants at either end of the dam, a huge pumping plant, and irrigation facilities



for serving about 1,029,000 acres of new land. The previous feasibility finding contemplated only 15 main generating units, with nine units in one powerhouse and six in the other. Space, however, was provided for nine units in each powerhouse.

Supplemental facilities contemplated by this report include the last three generating units for the right powerhouse and necessary associated equipment required to place them in commercial operation. Supplemental equipment to be purchased and installed includes three generators rated at 108,000-kva each, three 165,000-horsepower turbines, transformers, control equipment, circuit breakers, bus structures, and all other electrical, mechanical and structural facilities necessary to deliver power from the three additional generators to transmission line terminals at the project switchyards.

Fully effective utilization of the additional generating units is necessarily also dependent upon the completion of Hungry Horse Dam. This dam, upon which construction has already started, will impound approximately 3,500,000 acre-feet of water, of which 2,980,000 acre-feet will represent active storage. Since construction of Hungry Horse Dam confers substantial benefits upon the Columbia Basin Project by enabling much more effective use of the last three generating units, it is considered equitable that revenues from these units pay a reasonable share, in conjunction with other downstream projects, of those costs of constructing Hungry Horse Dam which are allocable to downstream river regulation.

### Part III—ENGINEERING FEASIBILITY

House Document No. 172, referred to above, contains the statement:

Due to the fact that the generating units have a continuous capacity of 120,000 kilowatts, and the load factor is expected to be much higher than originally anticipated, only fifteen units are required to generate the potential energy in the stream modified by present storage, and the cost estimates used herein are based on an installation of fifteen units.

The Hungry Horse Project now under construction on the Flathead River in western Montana will provide about 2,980,000 acre-feet of active storage for power generation. This stored water will be released during the low run-off periods in the fall and winter as required to obtain maximum prime power generation from the system of interconnected powerplants. Water thus released will flow into the Columbia River above Grand Coulee Dam and will pass through its turbines en route to other powerplants downstream.

With a system consisting of Hungry Horse, Grand Coulee, McNary, Bonneville, and Detroit dams, all of which are existing or under construction, the increase in nominal prime power at Grand Coulee with three units added and with benefit of Hungry Horse storage, amounts to 160,000 average kilowatts. Capability at Grand Coulee during the storage control period when coordinated

with other plants of the system and with due allowance for irrigation requirements, based on the full development of the Columbia Basin Project, would be as follows:

1. With 15 units at Grand Coulee and without the Hungry Horse storage, 1,043,000 average kilowatts of nominal prime power would be produced.
2. With 18 units at Grand Coulee and with Hungry Horse storage, 1,203,000 average kilowatts of nominal prime power would be produced.

From the foregoing it follows that the increase in nominal prime power capability at Grand Coulee will approximate 160,000 kilowatts, which is equivalent to 213,300-kw of firm capability at 75 per cent load factor.

Studies of load requirements indicate that the composite load factor for the Northwest region will be approximately 75 per cent. In order to operate at that load factor, studies indicate that a 15-unit plant at Grand Coulee cannot operate at this load factor and at the same time make full use of the storage releases from Hungry Horse. To make such use and to adapt Grand Coulee to future load requirements, three additional units, or a total of 18, must be installed.

Similar estimates of power production for median water-year conditions indicate that an installation of about 21 main units at the Grand Coulee powerplant could be effectively used under such water conditions. The two existing powerhouses, however, can accommodate only 18 units.

Studies of annual energy production to be derived from three additional generating units at Grand Coulee show that in a critical water year these additional units, together with Hungry Horse storage, would add 160,000-kw of prime power, which is equivalent to 213,300-kw of firm capability at 75 per cent load factor at Grand Coulee without decreasing the amount of salable secondary energy there available.

It has been the experience at Grand Coulee that practically all energy that can be generated during the reservoir drawdown period is being utilized, and load estimates for the next decade indicate that this condition is likely to continue. In such circumstances and in view of the fact that critical water supply years occur only infrequently, it is reasonable to take account of average water-year conditions in judging the utility of the proposed generating units. Therefore, it would appear that there is little likelihood that any of the Grand Coulee units will be idle, except as required for maintenance and repair purposes. This is further strengthened by the fact that, should an occasion arise under which the Northwest would not require full use of all generating capacity, Grand Coulee, because of its high efficiency, would continue to generate for system loads. Obviously, high cost steam-electric plants would be relieved of load first.

Though not evaluated herein, additional storage in reservoirs other than Hungry Horse above Grand Coulee Dam would further add to the winter water supply and would enhance the critical

year power production of the 18-unit installation at Grand Coulee. Such reservoirs have been proposed by the Bureau of Reclamation in its comprehensive report on The Columbia River, and by various reports of the Department of the Army. Recent studies of the 1948 flood on the Columbia River reveal the need for some 10,000,000 acre-feet of additional active storage above Grand Coulee Dam, over and above the amount available from existing and authorized projects.

### Reserve Capacity

Modern electric power system operation is unique among those agencies supplying commodities for the public in that the energy must be produced the instant it is required—there is no storage of the finished product in local warehouses to accommodate the customers' sudden demands. This method of operation, coupled with modern high standards of continuity of service, makes it essential that the producer (the generating plant) and the distributor (the transmission and distribution lines and substation) have full capacity available at *all* times, barring those unforeseeable incidents such as freak storms and various other extreme manifestations of nature. Provision of reserve capacity as assurance against mechanical and electrical failure is the established practice of the industry.

Fundamentally, reserve capacity appears in two forms:

The first is obtained by operating power facilities at a comfortable margin of 10 to 15 per cent below full capacity, so that failure of one generator in a system merely results in transfer of load to the remaining operating units. The techniques of operation in this fashion vary according to the available types of equipment and may, on the one hand during peak periods, call for operating a generator on the line but not loaded (spinning standby), or may call for operating one or several generators of the system at partial load.

The second form of reserve capacity appears in the form of spare generators, the function being to have in the system sufficient capacity to permit shutting down machines over extended periods for inspection, maintenance, and overhaul without jeopardizing the system to the extent of using up all its spinning reserve. Recognition of this practice is found in the Federal Power Commission's definition which describes "net assured capacity" as the capacity of the system with one of its largest generators out of service.

Both of the above factors enter into the consideration of the amount of generating capacity needed at the Grand Coulee powerplant, and are emphasized in no small degree by the dependent of the Hanford plutonium plant upon Grand Coulee for the utmost attainable in continuity of power supply.

In analyzing the requirements for idle spare capacity at the Grand Coulee powerplant, these factors are salient:

1. Major overhaul and inspection involves dismantling the units

every ten years, requiring outages of from four to six months per unit.

2. Normal routine inspection and maintenance requires outages of two weeks per unit per year.

3. The first generating unit will have operated ten years by the time the last unit is installed.

In a 10-year cycle (120 months) major overhauls will require that the equivalent of one generator be out of service 72 (4 x 18) months, and annual routine inspections will take out the equivalent of one unit for 80 ( $1\frac{1}{2}$  x 16 x 10) months. Thus, service and inspection require 152 machine-months in each cycle of 120 months, or an average of  $1\frac{1}{4}$  units out of service all the time—without taking account of unscheduled outages.

Considering all of the above factors, it is noted that when the Hungry Horse Dam is completed, 18 units would be required for generation of firm power at Grand Coulee. Inclusion of 1.8 units for reserve capacity and  $1\frac{1}{4}$  units for maintenance outages makes a total of 21 units that could be effectively utilized in a critical water year.

On the basis of the foregoing statements, it is concluded that an installation of at least 18 generating units at Grand Coulee is feasible from an engineering point of view. This installation is required to deliver the firm power available without the reserve or spare capacity required for normal operation.

#### Part IV—Costs

The Reclamation Project Act of 1939 requires a determination of the proper share of total estimated construction costs attributable to each of the purposes served by a project. This report is concerned only with the proposed installation of three additional generating units at Grand Coulee Dam, the total cost of which is, for the purposes of this report, considered to be chargeable to commercial power.

In this part of the report, consideration is given to the various costs which are regarded as properly chargeable to the units and what the probable payout requirements will be over a 50-year repayment period, which has been assumed for purposes of the calculations in this report. Anticipated revenues are analyzed, and findings regarding financial feasibility are made in Part V of this report.

Costs which are properly assignable to the installation and operation of the three additional generating units include (1) the cost of their purchase and installation at Grand Coulee Dam, (2) operation and maintenance costs, (3) replacement costs, and (4) an equitable share of the costs of the Hungry Horse Project. Each type of cost is discussed in greater detail below.

#### Additional Investment Cost at Grand Coulee Dam

The direct cost of adding three additional generating units at Grand Coulee Dam is estimated to be \$16,350,000 at July 1948

price levels. All of these costs are directly beneficial to commercial power production and are, for the purposes of this report, allocated 100 per cent to that purpose. The estimate includes the purchase and installation of turbines, generators, transformers, switching and control apparatus, and appurtenant facilities, including finishing the powerhouse and switchyard structures. No allocated part of the cost of the dam and reservoir is included in the above estimate, since these features of the project are covered by the previous feasibility finding set out in House Document No. 172. In summary, the construction cost estimate is as follows:

**Grand Coulee Powerplant, Units R-7, R-8, and R-9, Estimated  
Construction Cost at July 1948 Prices**

Powerplant, machinery, and equipment.....	\$13,221,000
Power transformers, transmission to switchyard and switchyard.....	3,129,000
Total .....	<u>16,350,000</u>

**Additional Operation and Maintenance Costs—  
Columbia Basin Project**

Annual costs of operating and maintaining the three generating units are estimated at \$75,000. This figure represents the incremental costs of operating three additional units in an established powerplant and is substantially lower than the similar annual cost would be for three generators of the same capacity in a separate powerplant. Over the 50-year repayment period, total additional operation and maintenance expense at the Columbia Basin Project would be \$3,750,000.

**Additional Replacement Costs—Columbia Basin Project**

In order that revenues may continue to be derived over the entire repayment period, all necessary replacements must be made. Estimated cash requirements for replacements during the repayment period total \$11,953,000.

**Hungry Horse River Regulation Benefits**

As stated in Part III of this report, the storage reservoir at the Hungry Horse Project will be operated in the best interests of system-wide power development with very substantial benefits accruing from such operation to the Grand Coulee Dam as well as other generating plants constructed or to be constructed downstream from the Hungry Horse Project. An equitable share of the costs of the Hungry Horse Project, accordingly, are assignable to the Grand Coulee plant and other downstream power developments benefiting from the river regulation to be effected by the Hungry Horse storage operation. The formula for the allocation of the costs of the Hungry Horse Project has not yet been worked out; therefore, no determination has been made as to the share of the Hungry Horse costs that should be allocated

for repayment by Grand Coulee. However, preliminary analyses indicate that revenues available from the sale of power to be generated at the Grand Coulee plant by virtue of the installation of the additional generating units and of the use of Hungry Horse storage will be adequate, after meeting all other costs, to make necessary payments to the Hungry Horse Project on account of storage benefits.

### Summary of Costs to be Returned

Tabulated below are the costs which have been discussed above, except the amount, as yet not finally determined, of payments to Hungry Horse Project for storage benefits.

TABLE I—*Costs Incurred at Grand Coulee Dam as a Result of Adding Three Units*

	<i>Total Cost</i>
Additional specific power facility investment at	
Grand Coulee Dam.....	\$16,350,000
Replacements at Grand Coulee Dam.....	11,953,000
Operation and maintenance expenses at Grand Coulee Dam....	3,750,000
Total .....	<u>32,053,000</u>

### PART V—FINANCIAL FEASIBILITY

The Reclamation Project Act of 1939 requires, in addition to the finding of engineering feasibility, a finding of financial feasibility. There must be (1) a determination of the estimated costs which can properly be allocated to various purposes including power (2) a determination that the amount allocated to power can probably be returned out of net power revenues, and (3) a determination that the amounts allocated to all the various purposes account for the total estimated construction costs. As stated in Part IV of this report, all costs properly chargeable to the three additional generating units are assumed to be allocable to commercial power. Hence, such costs are in this analysis assumed to be returnable from commercial power revenues.

### Estimated Revenues

As shown in Part III of this report, the addition to the three generating units to the powerplant at Grand Coulee Dam, together with the benefits of storage provided by the Hungry Horse Project, will result in a substantial increase in power production capability. Therefore, a substantial increase in the amount of revenues to be derived from the sale of Grand Coulee power will be achieved. The additional prime power capability at Grand Coulee Dam is estimated at 160,000-kw. This prime power, at a load factor of 75 per cent and adjusted for a diversity factor of 1.03 and system losses at 7 per cent, would be equivalent to salable firm power production of 204,400-kw. At

an average net value of \$8.46 per kilowatt per year,<sup>1</sup> this increase in firm power production would have a value of \$1,729,000 annually. The value of firm power over the entire 50-year payout period would be \$86,450,000.

### Repayment of Costs

As shown in Part IV of this report, the incremental costs to be incurred as a result of the addition of the three units are estimated to total \$32,053,000. Deducting this amount from the total increase of \$86,450,000 in revenues at Grand Coulee would leave a surplus of revenues totaling \$54,397,000 over a payout period of 50 years, which surplus is in excess (1) of an amount (\$15,423,000) equal to interest at the rate of three per cent per annum on the unamortized balances of the construction costs of the three units, or which, on an annual basis, is in excess of a return of three per cent on such construction costs; and (2) of probable necessary payments to the Hungry Horse Project by reason of downstream benefits to the Grand Coulee plant.

In determining financial feasibility as to these units, there has been applied to the additional power and energy to be available from the units the existing wholesale rates of the Bonneville Power Administration. It is clear from the foregoing figures that these rates, as applied to the power and energy from these units, also meet the rate standards of section 9 of the Reclamation Project Act of 1939.

### Summary of Revenues and Costs

Tabulated below are the revenues resulting from the addition of three units (R-7, R-8, and R-9) at Grand Coulee Dam and the costs properly chargeable thereto.

TABLE II—*Additional Revenues Anticipated to Accrue from Sale of Power to be Generated at the Columbia Basin Project as a Result of Hungry Horse Upriver Storage and the Installation of Generating Units R-7, R-8, and R-9*

Increase in nominal prime power at Grand Coulee.....	160,000 kw
Increase in firm power at Grand Coulee at 75 percent load factor (160,000 divided by 0.75).....	213,300 kw
Firm power adjusted for diversity factor (1.03) and transmission losses (213,300 x 1.03 x 0.93).....	204,400 kw
Annual value of firm power at \$8.46 per kilowatt-year (204,400 x \$8.46).....	\$1,729,000
Total value of firm power over 50-year payout period (\$1,729,000 x 50).....	\$86,450,000
Total cost of three additional units.....	32,053,000
Indicated surplus .....	54,397,000
Amount equal to interest at 3 percent.....	15,423,000
Indicated balance available to meet payments required by reason of benefits from Hungry Horse and for other purposes .....	38,974,000

<sup>1</sup>Although the Bonneville Power Administration's basic wholesale rate is \$17.50 per kilowatt-year, some of the power is sold at other rates applicable to low load factor loads. Based upon past results, the average realization per kilowatt of firm power sold is estimated at \$17.15 per year. The Administration estimates annual transmission costs at \$8.69 per kilowatt of firm power sold, leaving \$8.46 per kilowatt available for the generating plants.

Since anticipated additional revenues to the United States from the sale of power to be generated at the Columbia Basin Project by virtue of the installation of generating units R-7, R-8, and R-9, and the use of Hungry Horse storage will be more than adequate to meet the minimum revenue requirements of subsection 9 (c) of the Reclamation Project Act of 1939, and since such anticipated additional revenues will exceed the repayment requirements of subsection 9 (a) of that Act, it is the conclusion of this report that installation of these three units is feasible from a financial standpoint.

The foregoing findings as to engineering feasibility, estimated costs and their allocation, and financial feasibility are such that, if approved and adopted by the Secretary of the Interior, they will meet the requirements of section 9 of the Reclamation Project Act of 1939. It is believed also to be proper to regard these works as not works for irrigation and purposes incidental thereto within the meaning of subsection 1 (c) of the act of December 22, 1944 (58 Stat. 887) since the works are to be devoted to commercial power production. It follows that, on the adoption of the report and findings by the Secretary and their submission to the President and the Congress, the works may be regarded as authorized under the provisions of section 9 of the Reclamation Project Act of 1939.

As indicated earlier herein, the power and the energy to result from the operation of these units will be marketed by the Bonneville Power Administration under the provisions of Executive Order No. 8526, dated August 26, 1940, but the responsibility for accounting for the investment chargeable to these units remains with the Bureau of Reclamation. These circumstances present some problems with respect to the handling and disposition of power revenues attributable to the units. These problems will be met by arrangements to be made by the Bureau of Reclamation and the Bonneville Power Administration, subject to approval by the Secretary of the Interior.

(Signed) MICHAEL W. STRAUS,  
*Commissioner of Reclamation.*

UNITED STATES DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington, January 5, 1949.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget.)*

MY DEAR MR. PRESIDENT: There is enclosed a copy of a memorandum to me from the Commissioner of Reclamation and the



Commissioner's accompanying report on feasibility of additional generating capacity at Grand Coulee Dam, Columbia Basin Project, Washington, prepared pursuant to the provisions of Section 9 of the Reclamation Project Act of 1939. I have approved and adopted the report and the accompanying findings set forth in the Commissioner's memorandum. Consequently, the installation of the additional generating capacity at Grand Coulee Dam dealt with in the report and findings (generating Units R-7, R-8, and R-9) is authorized under the provisions of Section 9(a) of the Reclamation Project Act of 1939.

Unless you have objection, the Commissioner's memorandum and report will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
*Washington 25, D. C., January 17, 1949.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: In response to your letter dated January 5, 1949, transmitting your report on feasibility of additional generating capacity (Units R-7, R-8 and R-9) at Grand Coulee Dam, Columbia Basin Project, Washington, I am authorized by the Director of the Bureau of the Budget to advise you that there would be no objection to the submission of the report to Congress.

Sincerely yours,

(Signed) L. C. MARTIN,  
*Assistant Director, Estimates.*

OFFICE OF THE SECRETARY,  
*Washington 25, D. C., February 8, 1949.*

Honorable SAM RAYBURN,  
*Speaker of the House of Representatives.*

MY DEAR MR. SPEAKER: Pursuant to the Reclamation Project Act of 1939 there are transmitted herewith a report and findings

on the feasibility of the installation of additional generating capacity (Units R-7, R-8 and R-9) at Grand Coulee Dam, Columbia Basin Project, Washington.

On January 5 the report and findings were transmitted to the President. The Bureau of the Budget, by letter dated January 17, has advised that there would be no objection to the submission of the report to the Congress.

With the transmittal of the report and findings to the Congress the requirements of Section 9 (a) of the Reclamation Project Act of 1939 have been fulfilled with the consequence that installation of these additional generating units at Grand Coulee Dam is authorized as new supplemental works on the Columbia Basin Federal reclamation project, Washington.

In addition to the report and findings, there are also enclosed a copy of this Department's letter of January 5 to the President and a copy of the letter from the Bureau of the Budget dated January 17.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

(Identical letter sent to President of the Senate.)

# DAVIS DAM PROJECT

UNITED STATES DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION,  
*Washington, April 7, 1941.*

The SECRETARY OF THE INTERIOR.

SIR: In conformity with section 15 of the Boulder Canyon Project Act (45 Stat. 1057), the Bureau of Reclamation has been conducting extensive studies in the Colorado River Basin for the purpose of developing a comprehensive plan for the conservation and utilization of the waters of the main stream and its tributaries. The authorization contemplated that reports should be made from time to time on projects and plans.

Engineers of the Bureau of Reclamation have given special attention this past year to means of refining the general plan for development of the lower section of the Colorado River and of arranging to meet a prospective critical power shortage in the surrounding area. Demands upon the Boulder Dam power plant, even after it has been supplemented by the Parker Dam power plant and plants on the All-American Canal, will be such, owing to normal growth of load and to national-defense requirements, that an additional source of energy will be needed.

The engineering report shows that the situation can be met by construction of the Bullshead Dam project. Features of the project will be Bullshead Dam, an earth and rock-fill structure 338 feet high in the Colorado River about 67 miles below Boulder Dam; Bullshead Reservoir having a capacity of 1,600,000 acre-feet of active storage and extending to the tailrace of the Boulder Dam power plant; Bullshead Dam power plant having an initial installation of 180,000 kilowatts and an ultimate installation of 225,000 kilowatts; transmission lines inter-connecting the Bullshead plant with the Parker Dam power project system and with market centers; and incidental and appurtenant works.

The Bullshead Dam project will serve important multiple purposes. Through reregulation of the flow of the main stream of the Colorado River below Boulder Dam it will contribute to flood

reduction, navigation improvement, irrigation and domestic water supplies, power development, silt pollution reduction, recreation, and wild waterfowl protection, as well as other related conservation purposes. The Bullshead Dam will take its place as one of the great series of dams between the Grand Canyon and the point at which the Colorado River flows into Mexico. This series includes Boulder, Bullshead, Parker, Headgate Rock, Imperial, and Laguna Dams. The series, all Government dams, will develop this section of the river to a maximum for all purposes. Bullshead Dam will contribute in a major way to the development of the lower river for hydroelectric power. Although it serves other purposes as noted, since these purposes have been taken into consideration fully in the allocation of costs of other structures of the series, the entire cost of the Bullshead Dam project should be allocated to power. A prospective service of Bullshead Dam should be noted and emphasized. When an international agreement regarding the division of the waters of the Colorado River between the United States and Mexico is completed, the accurate control which will be provided by Bullshead Dam will be essential to meter out the water to be passed downstream.

The creation of Bullshead Reservoir will enable the outlets at Boulder Dam to be operated for maximum power production in coordination with rapid fluctuations in the production at plants in Southern California and in the demand for power in that area, which the Boulder plant principally serves. The power plant at Bullshead will be coordinated, however, with the Parker plant about 80 miles farther downstream, and will assist in serving the growing demands in southern Nevada, in western and central Arizona, and in south-eastern California. The prospective power requirements of the market area are that 1,334,000,000 kilowatt-hours of energy will be needed annually in the near future. If the Bullshead Dam project is completed in 3 years, it will meet, with the Parker plant and certain small projects that may be developed, these requirements until such time as the Metropolitan Water District of Southern California exercises its right to one-half of the power from Parker Dam.

The cost of the Bullshead Dam project is estimated at \$41,200,000. The cost being allocated to power, it is expected to be repaid in 40 years with interest at 3 percent under section 9 of the Reclamation Project Act of 1939 (53 Stat. 1187). The annual cost of amortizing the project on this basis will be \$1,782,400 and the annual cost of operation and maintenance will be \$380,000. Power rate and demand studies show that at rates comparable with those established for the Parker Dam power project, the energy from the Bullshead Dam project will yield sufficient revenue to guarantee the payment of the charges both for operation and maintenance and for amortization of the project.

The benefits to be derived from the construction of the Bullshead Dam project far exceed the annual costs, and the project clearly meets all the requirements of the Reclamation Project Act of 1939. I recommend, therefore, that you find the project feasible, and that the finding and the report be transmitted to the

Congress in compliance with the provisions of the Reclamation Project Act of 1939.

Respectfully,

(Signed) JOHN C. PAGE,  
*Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, April 26, 1941.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

MY DEAR MR. SPEAKER: There is submitted herewith the reclamation report on the Bullshead<sup>1</sup> Dam project on the Colorado River where that stream forms the boundary between Arizona and Nevada.

The report consists of the letter of April 7, 1941, to me from the Commissioner, Bureau of Reclamation, the engineering and economic report transmitted with that letter, and this, the finding with respect to the feasibility of the project.

The plan for the Bullshead Dam project contemplates the construction of a large dam, a power plant, transmission lines, and incidental and appurtenant works to cost approximately \$41,200,000. The project will make available ultimately 225,000 kilowatts of electric energy. It will serve through regulation of the river below Boulder Dam to increase the efficiency of the Boulder Dam power plant, and to contribute to flood control, navigation improvement, irrigation and municipal water supplies, power development, reduction of silt pollution, recreation, wild waterfowl protection, and related conservation purposes. It will also prove most useful eventually in metering the water passed downstream for use beyond the boundary of the United States.

The plan of operation contemplates the coordination of water releases from Bullshead Reservoir with releases from Lake Mead, the reservoir created by Boulder Dam, and the coordination of power production at the Bullshead Dam power plant with that of the Parker Dam power plant.

Demands for power are outrunning present means of meeting them in the Southwest. The Bullshead Dam project, with the Parker Dam power project and other smaller developments which may follow, will meet the situation for some years, or until the Metropolitan Water District of Southern California exercises its rights to one-half of the power from the Parker plant.

<sup>1</sup>On June 26, 1941, Secretary of the Interior Harold L. Ickes named Bullshead Dam "Davis Dam" in honor of Arthur Powell Davis, first Director of the Bureau of Reclamation (at that time the Reclamation Service).

Owing to the manner in which the Bullshead Dam project fits into the plan for the development of the lower Colorado River, no allocation of costs is made to benefits other than to power. Sales of electric energy are expected to yield revenues to cover the cost of operation and maintenance of the Bullshead Dam project, and to amortize the entire cost of the project in 40 years with interest at 3 percent, thus fulfilling the requirements of the Reclamation Project Act of 1939. The power will be sold at rates comparable with those established for the Parker Dam power project, thus spreading the benefits which follow low-cost power.

I find that the Bullshead Dam project is feasible as to its construction from an engineering point of view. I find that it will benefit in many ways the region and the people of the region, and that its economic benefits exceed the annual charges. I find that repayment of the entire cost of its construction with interest at 3 percent may confidently be expected within 40 years. The Bullshead Dam project, consequently, is authorized for construction under the provisions of section 9 of the Reclamation Project Act of 1939. Construction should be begun as soon as possible in order to meet a prospective serious power deficiency.

The Director of the Bureau of the Budget has informed me that authorization of the Bullshead Dam project at this time is in accord with the program of the President.

Sincerely yours,

(Signed) E. K. BURLEW,  
*Acting Secretary of the Interior.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1942

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1942, and for other purposes. (Act June 28, 1941, 55 Stat. 303, 336, Public Law 136, 77th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1942, namely:

\* \* \* \* \*

### GENERAL FUND, CONSTRUCTION

For commencement and continuation of construction of the following projects and for general investigations and administrative expenses in not to exceed the following amounts, respectively, to

be expended from the general fund of the Treasury in the same manner and for the same objects of expenditures as specified for projects included hereinbefore in this act under the caption "Bureau of Reclamation" under the heading "Administrative provisions and limitations," but without regard to the amounts of the limitations therein set forth, to be immediately available, to remain available until expended, and to be reimbursable under the Reclamation law:

Bullshead project, Arizona-Nevada, \$4,000,000, for the purposes and substantially in accordance with the report thereon heretofore submitted under Section nine of the Reclamation Project Act of 1939, and subject to the terms of the Colorado River Compact.

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1945

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1945, and for other purposes. (Act June 28, 1944, 58 Stat. 466, 490, Public Law 369, 78th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1945, namely:

\* \* \* \* \*

### GENERAL FUND, CONSTRUCTION

For continuation of construction of the following projects and for general investigations and administrative expenses in not to exceed the following amounts, respectively, to be expended from the general fund of the Treasury in the same manner and for the same objects of expenditures as specified for projects included hereinbefore in this act under the caption "Bureau of Reclamation" under the heading "Administrative provisions and limitations," but without regard to the amounts of the limitations therein set forth, to be immediately available, to remain available until expended, and to be reimbursable under the Reclamation law:

Davis Dam project, Arizona-Nevada: *Provided*, The appropriation heretofore made for this project shall be available for construction of that part of the Davis-Phoenix transmission line from the vicinity of Parker Dam to Phoenix, Arizona.

# DESCHUTES PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
Washington, September 24, 1937.

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report on the North Unit of the Deschutes Reclamation project, in Oregon, is made to you under the provisions of Section 4 of the act of June 25, 1910, 36 Stat. 835.

Section 4 of the act of June 25, 1910, provides in effect that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat. 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat. 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features of the North Unit of the Deschutes project requiring investigation and report under Subsection B, Section 4, Act of December 5, 1924, supra, will be discussed in the order in which presented in that subsection, as follows:

## WATER SUPPLY

The Deschutes River has a substantially uniform flow throughout the year with most of the irrigation season waters in use by

<sup>1</sup>The Deschutes Project was initiated under the provisions of the Emergency Relief Appropriation Act of 1935.

The Crane Prairie Dam was approved for construction under the terms of the original project authorization, to replace an old existing dam which was inadequately constructed by the local people.



constructed canals. The winter flow is to be conserved by a reservoir of 209,000 acre feet capacity at the Wikiup site, which, the stream flow records indicate, will fill, or nearly fill, every winter. About 90% of the yield of the reservoir will be used by the North Unit Project and will, with small additional surplus waters, provide a full water supply for the project. A part of such waters is now in use for power production, and will be liberated for irrigation use by providing substitute power from another source.

## ENGINEERING FEATURES

### Storage Reservoir

The Wikiup Reservoir site located on the Deschutes River about 40 miles above Bend requires a main dam 83 feet high above stream bed and 3,100 feet long and two auxiliary dikes with lengths of 14,900 feet and 3,600 feet respectively. The dam and dikes will be of the rolled earth embankment type, faced with rock riprap. A side channel spillway of 5,000 second-feet capacity is to be provided on the right abutment.

The reservoir area of 11,200 acres is largely covered with a heavy stand of lodge pole pine and considerable clearing is required.

### Main Canal

The main canal will divert from the Deschutes River at an existing diversion dam in Bend and extend northerly a distance of 65 miles to the Agency plains near Paxton. The first 3.3 miles consist of enlargement of existing canals to a capacity of 1,500 second-feet to provide 1,000 second-feet of capacity for the project. To mile 29.0, the canal crosses a rolling lava mesa with variable but generally steep slopes. Near Terrebonne a steel siphon 7,660 feet long and 13.33 feet in diameter crosses the Crooked River. Between Terrebonne and the southerly end of the irrigable lands at mile 39, the canal follows a flat gradient along or near the Crooked River Gorge. At mile 32.2 it crosses Osborne Canyon in a 13' diameter steel siphon 1,115' long. Beyond mile 39.2 the canal extends easterly about 5 miles on the northerly slope of Juniper Butte, thence north in a series of earth sections and chute drops along the edge of the rough country to Metolius. Beyond Metolius, the main canal crosses Willow Creek in a 94-inch steel pipe siphon 1,640 feet long. The main canal terminates on the Agency plains 5.5 miles beyond the Willow Creek siphon.

A considerable portion of the main canal is located through rock cuts and considerable concrete and gunite lining are needed to reduce seepage losses.

### Lateral System

Water is to be taken from the main canal and conveyed to the lands by means of three major laterals, with an aggregate length

of 20 miles, having a capacity in excess of 100 second-feet and numerous smaller laterals. A system of sublaterals is planned to convey water from the main canal and major laterals to the farm ditches.

### Miscellaneous Costs

To cover costs such as puddling canals, operation and maintenance during construction, possible future drainage of seeped areas, etc., a gross sum of \$500,000 is included under this item.

### COST OF CONSTRUCTION BY FEATURES

Storage .....	\$2,540,000
Main canal .....	3,970,000
Major laterals .....	190,000
Minor laterals .....	800,000
Miscellaneous .....	500,000
Total .....	<u>8,000,000</u>

### LAND PRICES, AND PROBABLE COST OF DEVELOPMENT

The North Unit comprises 50,000 acres of irrigable lands located around Madras, Oregon, most of which has, in times of better rainfall, been in cultivation with grain crops predominating. Houses and barns still dot the area, but many are unoccupied, the owners being engaged in a search for a livelihood elsewhere. Those who have managed to remain, can do so only with outside assistance. The weather records show that the area cannot be permanently farmed without irrigation. A repayment contract with the district containing these lands and agreements with individual land owners will provide for appraisal of the land on the basis of values without irrigation and for the sale at or below the appraised values, to new settlers, of holdings in excess of the areas required for a family, which are 40 acres for a single ownership, and 80 acres for a family.

### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land embraced in the project is of average fertility. Rough land and poor soil have been eliminated. The remaining land can easily be prepared for the effective application of water. If prop-

erly prepared for irrigation and properly cultivated, good yields of all crops grown in this locality are assured. With care in the selection of settlers, with farms suitably improved and equipped, success in farming may reasonably be anticipated.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

A finding is required that the reimbursable portion of the cost of construction will probably be returned to the reclamation fund. This is interpreted to mean that it will be returned within the maximum period fixed by Reclamation Law, which is in 40 years from the time the public notice that the works are completed is issued by the Secretary. The Acting Attorney General's decision of September 7, 1937, holds that a federal reclamation project may be constructed, as is contemplated here, partly by the use of money from the reclamation fund and partly with non-reimbursable funds from other sources.

It has been concluded that the settlers on the project can pay \$4.00 per acre per year for irrigation. Of this sum \$1.00 per acre will be required to meet costs for operation and maintenance of the irrigation system by the district following its construction by the Government. In the 40-year repayment period the amount repaid would then be \$6,000,000 or \$2,000,000 less than the estimated total cost of the project.

It is proposed to utilize CCC camps to do work having a value of at least \$2,005,000. About one-half of such work consists of clearing the reservoir site of brush and timber, an activity exceptionally suited to CCC camps. Other activities will comprise extensive assistance to engineers in development the cheapest location for the main canal through rocky bad lands to reach the project, reconstruction of roads, preparation and assembly of concrete materials, and light construction work requiring a minimum of equipment and construction technique. Many of these workers will find the project a desirable place to live.

Because of the urgent need to improve the lot of the farmers still resident on the North Unit, to enable the return of those temporarily seeking a livelihood elsewhere, and to avoid abandonment of the communities dependent thereon, I recommend that construction of the North Unit of the Deschutes Project, together with the storage reservoir, be approved. The undertaking will provide healthful and instructive work for CCC camps on a constructive, wealth producing activity, for a number of years.

Sincerely yours,

(Signed) T. A. WALTERS,  
*Acting Secretary of the Interior.*

Approved NOVEMBER 1, 1937.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

BUREAU OF RECLAMATION,  
*Washington, May 26, 1945.*

Memorandum for ASSISTANT SECRETARY STRAUS.

By memorandum of May 23, you required further justification before approving as to form an amendatory repayment contract with the Jefferson County Water Conservancy District, which, among other things, would provide for increasing the maximum size of ownership from 80 acres per man and wife to 160 acres per family.

By teletype from the Associate Regional Director, a copy of which is attached, I have received additional justification. In substance, it is an analysis of detailed studies of four projects comparable with the Jefferson district as to soils, climate, markets, and other conditions. Those data are related to the standards of living that would provide full stable settlement of the Deschutes project. The livelihood standards are those established for the Pacific Northwest in Lloyd H. Fisher's recent studies made in collaboration with the Bureau of Reclamation and published under the title of "What is a Minimum Adequate Farm Income?" The data are related to the prevalence of various land classes on the Jefferson district. The analysis also gives proper consideration to the necessity for diversification in order to maintain productivity of the project lands.

The Associate Regional Director summarizes the findings based on those data as follows:

(1) That, as a maximum size of unit, the 40-80-acre limitation of the existing contract is unjustifiably low.

(2) That, in order to provide an average sized family with an adequate livelihood on project lands, a farm unit could range justifiably from 50 acres for best lands to sizes approaching 180 acres for poorest lands which are expected to be irrigated, with 160 acres a readily supportable and workable maximum.

(3) For the project as a whole, the average size of unit should be within the range of 75 or 80 acres, but that the average size probably will approach 70 acres.

The Associate Regional Director adds the following statement, "It's neither the desire nor the recommendation of this office that, through establishment of 160 acres per family maximum, better lands in the project be operated in such large units. But, to provide control in terms of individual units of varying size would require stoppage of project pending enactment of fundamentally different legislation than now governs. Obviously, carrying through of War Food Program precludes such course. We are left, then, where we are on all private land projects, except the Columbia Basin—having to deal with limitation in terms only with maximums necessarily controlled by the poorest units which are to be irrigated."

I concur in the Associate Regional Director's findings with respect to the proper and justifiable maximum limitation of ownership as 160 acres per family.

I recommend that you approve as to form the contract herewith resubmitted. In view of the May 29 date for which the district election has already been called, I urge that your approval be given at the earliest possible moment.

(Signed) H. W. BASHORE,  
*Commissioner.*

Approved May 26, 1945.

(Signed) MICHAEL W. STRAUS,  
*Assistant Secretary.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1948

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1948, and for other purposes. (Act July 25, 1947, 61 Stat., 460, Public Law 247, 80th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated for the Department of the Interior for the fiscal year ending June 30, 1948, namely:

\* \* \* \* \*

### CONSTRUCTION

Construction: For construction and continuation of construction of the following projects in not to exceed the following amounts, all to be reimbursable under the Reclamation Law, except as provided in the act of August 14, 1946 (Public Law 732), Seventh-ninth Congress, to remain available until expended for carrying out projects (including the construction of transmission lines) previously or herein authorized by Congress:

\* \* \* \* \*

Deschutes project, Oregon, \$1,626,000, of which \$100,000 shall be available toward emergency rehabilitation of the works of the Arnold Irrigation District, to be repaid in full under conditions satisfactory to the Secretary of the Interior.

PROVISIONS OF INTERIOR DEPARTMENT  
APPROPRIATION ACT, 1949

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1949, and for other purposes. (Act June 29, 1948, 62 Stat. 1112, Public Law 841, 80th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1949, namely:

\* \* \* \* \*

## CONSTRUCTION

Construction: For construction and continuation of construction of the following projects in not to exceed the following amounts, all to be reimbursable (except as otherwise provided by law) under the reclamation law, to remain available until expended for carrying out projects (including the construction of transmission lines) previously or herein authorized by Congress:

\* \* \* \* \*

Deschutes project, Oregon, \$580,000, of which \$350,000 shall be available toward emergency reconstruction of Ochoco Dam subject to allocations under section 7 of the Reclamation Project Act of 1939, and repayment of reimbursable amounts under terms satisfactory to the water users and the Bureau of Reclamation;

# EDEN PROJECT

OFFICE OF THE SECRETARY,  
*Washington, August 7, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contains an appropriation of \$5,000,000, from which allocations may be made by you:

For construction, in addition to labor and materials to be supplied by the Works Progress Administration, of water conservation and utilization projects, \* \* \* in the Great Plains and arid and semiarid areas of the United States, \* \* \*

All expenditures from the appropriation, and as much of the expenditures from the Work Projects Administration funds as you determine, are to be considered reimbursable. Hereinafter the appropriation item will be termed the "1940 Water Conservation Appropriation."

The Eden irrigation project in Sweetwater County in southwestern Wyoming, near the town of Eden, is the type of project that is contemplated to be constructed under the provisions of this item. This project was originally constructed to irrigate about 30,000 acres and was settled in 1910. Due in part to improper construction of irrigation works there are now only 9,000 acres in cultivation. It is proposed to construct storage works, build a drainage system, and rehabilitate the distribution system to serve 20,000 acres. The Farm Security Administration has found that there are opportunities to settle many distressed farm families on the project. The Work Projects Administration has reported that more than 400 workers who are living within two hundred miles of the project could be made available, provided suitable camp and transportation facilities were furnished. However, it is believed that construction will be more efficient if a part of the work is accomplished by forces from the Civilian Conservation Corps. Consequently, plans are being made to obtain the services of two CCC camps.

The lands to be irrigated are situated along both sides of Little and Big Sandy Creeks at and above their confluence. The soils of the project are predominantly sandy loams and under irrigation are capable of furnishing good yields of alfalfa, sweet clover, grains, and similar crops. The surrounding country contains some excellent range land. The principal industry of the present project is dairying, a ready market for the products of which is found at Rock Springs, Wyoming. The Eden project is not situated on a railroad but a new Federal highway passes through the project area, connecting it with the city of Rock Springs.

The existing irrigation facilities comprise the Eden reservoir of 12,300 acre-feet capacity, four small reservoirs at the headwaters of Big Sandy Creek of 2,500 acre-feet aggregate capacity, the Eden Canal of twenty miles length and a comprehensive system of laterals. The plan of development includes the construction of a new reservoir on Big Sandy Creek, as the investigations indicate that this will be more economical than the rehabilitation of the existing dam. It will be necessary to construct a four-mile outlet canal, to rehabilitate the present canal and distribution system, and to construct a drainage system for the entire 20,000 acres. The development program will also include the necessary rough land leveling.

The estimated cost of construction and land development, including the building of all irrigation structures, rough leveling and resettlement costs is \$2,445,000. The Department of Agriculture has made a survey of the project, and states its belief that the water users will be able to repay \$1,200,000 of this amount over a period of forty years and, in addition, to carry the annual costs for operation and maintenance. This reimbursable sum should be obtained from the 1940 Water Conservation appropriation. The remaining amount of \$1,245,000 required to construct the project is expected to be provided by the Work Projects Administration and the Civilian Conservation Corps. A tabulation is attached in which is shown a tentative breakdown of expenditures from the three funds. The estimate of expenditures from Work Projects Administration funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to the fiscal year 1940. The efficiency is unknown with which the work can be constructed under the present regulations and those that may be placed in effect before the work is done. Therefore, the estimate of Work Projects Administration funds required may need revision at some later date.

I recommend that the Bureau of Reclamation undertake the construction of the Eden project; that appropriate bureaus of the Department of Agriculture conduct the land development program and the arrangements for settlement, repayment, and project operations; and that the National Resources Planning Board assist in the planning and coordinating field.

I recommend that the allocation of \$1,200,000 from the 1940 Water Conservation Appropriation be made to the Department of the Interior, Bureau of Reclamation, and that the Work Projects Administration be requested to give earnest consideration to



the project applications which will be filed by the Bureau of Reclamation to obtain assistance in the construction of the Eden project.

The Bureau of Reclamation will reimburse the Department of Agriculture and the National Resources Planning Board for all services provided by these two agencies in connection with the construction of the project through transfers or advances from the funds made available to the Bureau of Reclamation.

The Acting Secretary of the Department of Agriculture has recommended, and I am in accord with his recommendations, that the following conditions as to excess and tenant operated lands should apply to this project:

1. No Water for Excess Lands. Water will not be delivered for use upon lands under one ownership in excess of an adequate sized unit to be determined by the Secretary of Agriculture. Excess lands to be eligible for the delivery of water must be sold at not to exceed the Government appraised price. In the event that the owner of lands in excess of an adequate sized unit has a water right which partially satisfies his needs for an adequate sized unit, he will be delivered only sufficient additional water to fully satisfy his needs upon his specifically designated adequate sized unit.

2. Water Delivery for Lands in Tenant-Operator Status. Water for an adequate sized unit will be permitted for use on land operated by tenants, only when the Secretary of Agriculture has approved the tenure arrangements, adequacy and condition of home and farmstead buildings and other structures, and the condition and ability of the land to meet rent and debt payments and provide a decent living for the tenant families.

He estimates that the Department of Agriculture will require approximately \$200,000 for its participation, in addition to a Work Projects Administration contribution of about \$225,000. This latter sum is \$25,000 in excess of estimates made of funds required from the Work Projects Administration and Civilian Conservation Corps allocations, as shown on the attached tabulation entitled "Estimate of Expenditures." However, it is believed that the additional work indicated by the increase can be readily accomplished either by Work Projects Administration or Civilian Conservation Corps forces after the completion of the work proposed in this letter.

It is contemplated that actual construction will not be undertaken until the Department of Agriculture has made sufficient progress in an effort to obtain control of the large holdings at prices which do not exceed appraised valuations to insure the successful operation of the project. The time required for the construction of the project will depend largely on the availability of Civilian Conservation Corps camps and relief labor and may extend to three or four years.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved September 18, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

# FLATHEAD (INDIAN) PROJECT

DEPARTMENT OF THE INTERIOR,  
OFFICE OF INDIAN AFFAIRS,  
*Washington, April 26, 1907.*

The DIRECTOR OF THE RECLAMATION SERVICE.

SIR: During the last several years a considerable correspondence has passed between the United States Indian Agent of the Flathead Agency, Montana, and this Office in the matter of a system of irrigation for said reservation.

In his report of August 31, 1897, concerning the same matter, United States Indian Inspector McConnell said that it would be impossible to farm successfully in the Jocko Valley without irrigation, and suggested that the two systems then in use should be enlarged and an engineer familiar with irrigation work employed to outline the plan of irrigation which would make it possible to put in cultivation the entire valley.

The Indian Agent reported on November 23, 1897, that the two systems then in use consisted of a flume and ditch about five miles in length, taking water from the south and east side of the Jocko River, and a ditch about the same length taken from the south side of Finley Creek.

In his report of February 27, 1900, the Indian Agent urged that some action should be taken looking to the building of ditches necessary to make it possible for every young Indian to secure a farm upon which he might, with reasonable diligence, be able to support himself and family.

Inspector W. H. Graves expressed the opinion in his report of December 27, 1900, concerning the conditions existing among the Flathead Indians, that a successful system of irrigation could be carried out by means of a series of ditches that would be neither difficult nor expensive to construct.

In his report dated June 30, 1901, Special Agent Frank C. Armstrong also expressed the opinion that there should be a regular system of irrigation, and suggested that an engineer be sent to make an estimate as to the cost. Accordingly, Mr. W. E. Young, of Tooele, Utah, was employed under Department authority granted July 8, 1902, to prepare plans, estimates, etc., for a proposed system of irrigation, and on December 11, 1902, the Indian Agent transmitted the report of said engineer, dated December 10, 1902, in reference to an irrigation system for that portion of

the reservation known as Mission Valley, and commenting thereon said that the plan provided for two ditches, one costing \$8,055 and the other \$42,970, and reported that the system would provide the necessary water to irrigate more than 25,000 acres of fertile land, and that the cost per acre would be less than \$2.

Subsequently, the Agent transmitted a report of Engineer Young, dated December 23, 1902, in the matter of the possibility and cost of an irrigation system for that part of the reservation known as Jocko Valley. Mr. Young estimated that the construction of the various canals, diversion weirs, etc., referred to in his report would cost \$93,900. He reported that although the cost per acre irrigated would be less than \$4, he had not the confidence in the productiveness of the soil nor in its lasting qualities to recommend the construction of the larger works referred to in his report. He recommended, however, the construction of certain smaller ditches which would furnish water sufficient to irrigate 8,000 acres, and would involve an expenditure of only \$5,100.

Your attention is also invited to the Act of Congress of April 23, 1904 (33 Stat. L., 302), which provides for the survey and allotment of lands embraced within the limits of the Flathead Indian Reservation, and the sale and disposal of all surplus lands after allotment.

In view of the various reports in the matter of an irrigation system for this reservation, it is considered desirable that the Reclamation Service cause a preliminary investigation to be made, which will enable this Office to recommend such legislation, if any, as may be necessary to carry out an adequate system of irrigation for the lands to be allotted to the Indians and for the lands which may be opened to settlement. This investigation should be made as soon after July 1, 1907, as practicable—the expense thereof payable from the appropriation for the fiscal year ending June 30, 1908, for "Irrigation on Indian Reservations." In order that authority may be had for the necessary expenditure, you are requested to advise this Office as to the estimated cost of making the investigation referred to above.

The reports of Engineer Young, dated December 10, 1902, and December 23, 1902, are transmitted herewith for your information, with request that they be returned.

Very respectfully,

(Signed) C. H. LARRABEE,  
*Acting Commissioner.*

DEPARTMENT OF THE INTERIOR,  
*November 12, 1907.*

COMMISSIONER OF INDIAN AFFAIRS.

SIR: With reference to the Flathead Indian Reservation, the following resume is offered:

On April 8, 1907, the Acting Commissioner of Indian Affairs submitted a general statement indicating the Indian reservations where irrigation is being conducted, the conditions as regards future allotments of the lands, and among other items, provisionally allotted \$3,000 for surveys and examinations.

On April 26, 1907, the Acting Commissioner called attention to previous correspondence on the subject with the U.S. Indian agencies at the Flathead Agency and others and transmitted the reports of Engineer Young, dated December 10, 1902, and December 23, 1902.

In that letter he stated as follows:

In view of the various reports in the matter of an irrigation system for this reservation, it is considered desirable that the Reclamation Service cause a preliminary investigation to be made which will enable this office to recommend, etc.

The matter was informally discussed with Chief Engineer Code and the reservation was visited by Secretary and at the same time by Mr. F. H. Newell, Director, and Mr. H. N. Savage, supervising engineer of the Reclamation Service. As a result of these informal conferences engineering parties were placed in the field, early in July, under Mr. Robert S. Stockton, engineer, located at Huntley, Montana.

On August 16 the Director of the Reclamation Service wrote to the Commissioner of Indian Affairs from Deerfield, Kansas, calling attention to the fact that he had made a reconnaissance of the reservation and, with the informal authority of the Secretary of the Interior, had put parties in the field. Owing to the absence of Mr. Newell, Commissioner Luepp and others, the matter was not put in formal shape otherwise than in the letter of August 16. No reply was received to this letter.

The field surveys on this reservation have been nearly completed. The office compilation and plats showing the outline of possible development are now being worked up at the Huntley, Montana, office.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

## PROVISIONS OF INDIAN DEPARTMENT APPROPRIATION ACT, 1909

[Extracts from] An act making appropriations for the current and contingent expenses of the Indian Department, for fulfilling treaty stipulations with various Indian tribes, and for other purposes, for the fiscal year ending June thirtieth, nineteen hundred and nine. (Act April 30, 1908, 35 Stat. 70, Public Law 104, 60th Cong., 1st session)

\* \* \* That the following sums be, and they are hereby, appropriated, out of any money in the Treasury not otherwise appro-

priated, for the purpose of paying the current and contingent expenses of the Indian Department, for fulfilling treaty stipulations with various Indian tribes, and in full compensation for all offices the salaries for which are specially provided for herein for the service of the fiscal year ending June thirtieth, nineteen hundred and nine, namely:

\* \* \* \* \*

For preliminary surveys, plans, and estimates of irrigating systems to irrigate the allotted lands of the Indians of the Flathead Reservation in Montana and the unallotted irrigable lands to be disposed of under the act of April twenty-third, nineteen hundred and four, entitled "An Act for the survey and allotment of lands now embraced within the limits of the Flathead Indian Reservation in the State of Montana, and the sale and disposal of all surplus lands after allotment," and to begin the construction of the same, fifty thousand dollars, the cost of said entire work to be reimbursed from the proceeds of the sale of the lands within said reservation.

\* \* \* \* \*

That in carrying out any irrigation project which may be undertaken under the provisions of the act of June seventeenth, nineteen hundred and two (Thirty-second Statutes, page three hundred and eighty-eight), known as the reclamation Act, and which may make possible, and provide for, in connection with the reclamation of other lands, the irrigation of all or any part of the irrigable lands heretofore included in allotments made to Indians under the fourth section of the general allotment Act, the Secretary of the Interior be, and he hereby is, authorized to make such arrangement and agreement in reference thereto as said Secretary deems for the best interest of the Indians: Provided, That no lien or charge for construction, operation or maintenance shall thereby be created against any such reserved lands: And provided further, That to meet the necessary cost of carrying out this legislation, the Secretary of the Interior is authorized to expend, out of the sum appropriated in this Act for irrigation, an amount not exceeding thirteen thousand dollars.

# FORT PECK PROJECT<sup>1</sup>

## RIVERS AND HARBORS ACT, 1936

[Extract from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act August 30, 1935, 49 Stat. 1028, 1034, Public Law 409, 74th Cong., 1st sess.)

\* \* \* That the following works of improvement of rivers, harbors, and other waterways are hereby adopted and authorized, to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans recommended in the respective reports hereinafter designated and subject to the conditions set forth in such documents; and that hereafter Federal investigations and improvements of rivers, harbors, and other waterways shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and the supervision of the Chief of Engineers, except as otherwise specifically provided by Act of Congress:

\* \* \* \* \*

Missouri River, completion of improvement from mouth to Sioux City, Iowa, and construction of Fort Peck Dam; House Document Numbered 238, Seventy-third Congress.

## COMPLETION OF FORT PECK PROJECT

[Extracts from] An act to authorize the completion, maintenance, and operation of the Fort Peck project for navigation, and for other purposes. (Act May 18, 1933, 52 Stat., 403-407, Public Law 529, 75th Cong., 3d sess.)

\* \* \* That for the purpose of improving navigation on the Missouri River, and for other purposes incidental thereto, the

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<sup>1</sup> The Secretary of War is responsible for completion of the dam and power plant and the Bureau of Reclamation is responsible for construction and operating facilities for transmitting and marketing electric energy

dam and appurtenant works now under construction at Fort Peck, Montana, and a suitable power plant for the production of hydroelectric power (which dam, power plant, and appurtenant works are hereinafter called Fort Peck project), shall be completed, maintained, and operated under the direction of the Secretary of War and the supervision of the Chief of Engineers, subject to the provisions of this Act relating to the powers and duties of the Bureau of Reclamation (hereinafter called the Bureau), as provided for in section 2 (a), respecting the transmission and sale of electric energy generated at said project. The Secretary of War shall provide, construct, operate, maintain, and improve at Fort Peck project such machinery, equipment, and facilities for the generation of electric energy as the Bureau may deem necessary to develop such electric energy as rapidly as markets may be found therefor. The electric energy thus generated and not required for the operation of the dam at such project and the navigation facilities employed in connection therewith shall be delivered to the Bureau for disposition as provided in this Act.

SEC. 2. (a) The electric energy generated in the operation of the said Fort Peck project shall be disposed of by the Bureau as hereinafter provided. The Bureau shall exercise the powers and perform the duties provided for in this Act under the supervision and direction of the Secretary of the Interior in accordance with the Act of May 26, 1926 (44 Stat. 657). The Bureau shall, as hereinafter provided, make all arrangements for the sale and disposition of electric energy generated at the Fort Peck project not required for the operation of the dam at such project and the navigation facilities employed in connection therewith. The form of administration herein established for the Fort Peck project is intended to be provisional pending the establishment of a permanent administration for Fort Peck and other projects in the Missouri River Basin. The Secretary of War shall install and maintain additional machinery, equipment, and facilities for the generation of electric energy at the Fort Peck project when in the judgment of the Bureau such additional generating facilities are desirable to meet actual or potential market requirements for such electric energy. The Secretary of War shall schedule the operations of the several electrical generating units and appurtenant equipment of the Fort Peck project in accordance with the requirements of the Bureau. The Secretary of War shall provide and maintain for the use of the Bureau at said Fort Peck project adequate station space and equipment, including such switches, switchboards, instruments, and dispatching facilities as may be required by the Bureau for proper reception, handling, and dispatching of the electric energy produced at the said project, together with transformers and other equipment required by the Bureau for the transmission of such energy from that place at suitable voltage to the markets which the Bureau desires to serve.

(b) In order to encourage the widest possible use of all electric energy that can be generated and marketed and to provide reasonable outlets therefor, and to prevent the monopolization thereof by limited groups, the Bureau is authorized and directed to

provide, construct, operate, maintain, and improve such electric transmission lines and substations, and facilities and structures appurtenant thereto, as it finds necessary, desirable, or appropriate for the purpose of transmitting electric energy, available for sale, from the Fort Peck project to existing and potential markets, and, for the purpose of interchange of electric energy, to interconnect the Fort Peck project with either private or with other Federal projects and publicly owned power systems now or hereafter constructed.

(c) The Secretary of the Interior is authorized, in the name of the United States, to acquire, by purchase, lease, condemnation, or donation, such real and personal property, or any interest therein, including lands, easements, rights-of-way, franchises, electric transmission lines, substations, and facilities and structures appurtenant thereto, as he finds necessary or appropriate to carry out the purposes of this Act. Title to all property and property rights acquired by said Secretary shall be taken in the name of the United States.

(d) The Secretary of the Interior shall have power to acquire any property or property rights, including patent rights, which in his opinion are necessary to carry out the purposes of this Act, by purchase, lease, donation, or by the exercise of the right of eminent domain and to institute condemnation proceedings therefor in the same manner as is provided by law for the condemnation of real estate.

(e) The Secretary of the Interior is authorized, in the name of the United States, to sell, lease, or otherwise dispose of such personal property as in his judgment is not required for the purposes of this Act and such real property and interests in land acquired in connection with construction or operation of electric transmission lines or substations as in his judgment are not required for the purposes of this Act.

(f) Subject to the provisions of this Act, the Bureau is authorized, in the name of the United States, to negotiate and enter into such contracts, agreements, and arrangements as it shall find necessary or appropriate to carry out the purposes of this Act.

SEC. 9. The Secretary of the Interior, the Secretary of War, and the Federal Power Commission, respectively, shall appoint such attorneys, engineers, and other experts as may be necessary for carrying out the functions entrusted to them under this Act, without regard to the provisions of the civil-service laws, and shall fix the compensation of each of such attorneys, engineers, and other experts at not to exceed \$7,500 per annum; and they may, subject to the civil-service laws, appoint such other officers and employees as may be necessary to carry out such functions and fix their salaries in accordance with the Classification Act of 1923, as amended. In the administration of this Act the services of regular employees in the Bureau may be utilized and an equitable part of the salaries of such employees whose services are thus utilized may be charged by the Bureau to the operating costs of the power features of the Fort Peck project. The Bureau similarly



may utilize and charge for facilities of the Bureau which economically can be used in connection with the administration of this Act.

SEC. 10. All receipts from transmission and sale of electric energy generated at the Fort Peck project shall be covered into the Treasury of the United States to the credit of miscellaneous receipts, save and except that the Treasury shall set up and maintain from such receipts a continuing fund of \$500,000, to the credit of the Bureau and subject to expenditure by it, to defray the operating expense of generation and transmission of power delivered to the Bureau for disposal under this Act, to defray emergency expenses and to insure continuous operation. There is hereby authorized to be appropriated from time to time, out of moneys in the Treasury not otherwise appropriated, such sums as may be necessary to carry out the provisions of this Act, including installation of equipment and machinery for the generation of electric energy, and facilities for its transmission and sale.

SEC. 11. The Secretary of the Interior may, in the name of the United States, under the supervision of the Attorney General, bring such suits at law or in equity as in his judgment may be necessary to carry out the purposes of this Act; and he shall be represented in the prosecution and defense of all litigation affecting the status or operation of the Fort Peck project by the United States attorneys for the districts, respectively, in which such litigation may arise, or by such attorney or attorneys as the Attorney General may designate as authorized by law, in conjunction with the regularly employed attorneys of the Bureau.

SEC. 12. If any provision of this Act or the application of such provision to any person or circumstances shall be held invalid, the remainder of the Act and the application of such provisions to persons or circumstances other than those as to which it is held invalid shall not be affected thereby.

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1943

[Extracts from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1943, and for other purposes. (Act July 2, 1942, 56 Stat. 506, 509, and 531-537, Public Law 648, 77th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the De-

partment of the Interior for the fiscal year ending June 30, 1943, namely:

\* \* \* \* \*

Fort Peck project, Montana: For commencement of construction of transmission lines, substations and other facilities as may be required by the Bureau of Reclamation for proper reception, handling, transmitting and dispatching of electric energy produced at the Fort Peck project, as authorized by the act approved May 18, 1938, entitled "An act to authorize the completion, maintenance, and operation of the Fort Peck project for navigation, and for other purposes" (52 Stat., p. 403), \$499,475, to be immediately available and to remain available until expended, which amount shall be available for personal services in the District of Columbia (not to exceed \$10,000) and for all other objects of expenditure as specified hereinbefore in this act under the heading "Administrative Provisions and Limitations" appearing under the caption "Bureau of Reclamation," but without regard to the amounts of the limitations therein set forth.

# FORT PECK (INDIAN) PROJECT

## FORT PECK INDIAN RESERVATION

[Extract from] An act for the survey and allotment of lands now embraced within the limits of the Fort Peck Indian Reservation, in the State of Montana, and the sale and disposal of all the surplus lands after allotment. (Act May 30, 1908, 35 Stat., 558, Public Law 177, 60th Cong., 1st sess.)

\* \* \* That the Secretary of the Interior be, and he is hereby, authorized and directed to cause to be surveyed all the lands embraced within the limits of the Fort Peck Indian Reservation, in the State of Montana, and to cause an examination of the lands within such reservation to be made by the Reclamation Service and by experts of the Geological Survey, and if there be found any lands which it may be deemed practicable to bring under an irrigation project, or any lands bearing lignite coal, the Secretary of the Interior is hereby authorized to construct such irrigation projects and reserve such lands as may be irrigable therefrom, or necessary for irrigation works, and also coal lands as may be necessary to the construction and maintenance of any such projects.

UNITED STATES RECLAMATION SERVICE,  
*Poplar, Montana, June 14, 1909.*

The DIRECTOR, UNITED STATES RECLAMATION SERVICE,  
*Washington, D. C.*

SIR: We, the undersigned engineers, have carefully considered the irrigation of the Fort Peck Indian Reservation.

Preliminary surveys were made during the season of 1908 covering irrigable lands as follows: 8,000 acres in the vicinity of Milk River Station with water supply from Big Porcupine Creek and storage; 2,000 acres in the vicinity of Frazer, with water supply from Little Porcupine Creek and storage; 20,000 acres in the vicinity of Poplar, and extending along Poplar River a dis-

tance of about thirty-five miles, with water supply from Poplar River and storage at the forks of Poplar River and the West Branch; 15,000 acres lying along the west side of the Big Muddy River, with water supply from the Big Muddy River and storage at the mouth of Wolf Creek; 50,000 acres of clear second bench land, and approximately 25,000 acres of first bench land largely covered with brush and scattering cottonwood timber lying adjacent to the Missouri River and extending throughout the Reservation may all be irrigated with water from the Missouri River by a gravity canal heading near the site of Old Fort Peck.

Lying adjacent to and above this Missouri River Gravity Canal are two additional tracts of land which can be covered by pumping direct from the main canal with lifts of twelve and twenty feet respectively, one the "Galpin Bottom," comprising 6,000 acres and lying entirely outside of the Reservation and the other the "Milk River Bottom," comprising 6,000 acres lying wholly within the Reservation.

The water supply available from Big Porcupine Creek, Little Porcupine Creek, Poplar River and Big Muddy River is uncertain and undetermined, both as to total quantity and regularity of annual discharge. Both forks of the Poplar River and the Big Muddy River have their sources and a considerable percentage of their drainage areas in Canada. It is probable that eventually the entire quantity of water originating in Canada and now discharged through these streams will be diverted and used in Canada. The large area of land lying between the north boundary of the Ft. Peck Reservation and the Canadian boundary, as well as the equally large area lying within the Reservation and north of the comparatively narrow strip of Missouri River bottom and bench lands, are entirely dependent upon these four streams for water for irrigation and domestic purposes. The limited and uncertain water supply from these streams, together with the probability that the requirement for water along the streams will far exceed the available supply, renders reliance upon them as a source of supply for the irrigation of lands to be allotted to the Indians uncertain and, in our judgment, unwise.

Provided stream measurements extending over a considerable number of years should show the water supply to be sufficient and reliable, it is probable that lands could be irrigated by diversions from these streams at a construction cost per acre somewhat less than that of a gravity canal system taking out of the Missouri River; but the great uncertainty of the water supply, the complications which might arise owing to diversions in Canada, together with the fact that the Indians are now practically all settled and will desire allotments in the Missouri bottom lands lying between the river and the Great Northern Railway, lead us to believe the gravity system from the Missouri River to be the only one which at the present time can be properly considered for construction and the one which will prove adequate, reliable and for the best interests of the Indians.

The Missouri River Gravity Canal system as developed for construction takes out at a point about twelve miles west of the Reservation boundary line and the main canal throughout the Reser-

vation follows approximately the line of the Great Northern Railway. The main canal has a total length of 104 miles, of which the last 32 miles extending from Poplar River to the Big Muddy River is really but a lateral in dimensions and its construction may be delayed until after the other works are completed. The almost total absence of cross drainage renders the location an unusually attractive one as regards economical construction and operation. Two concrete lined tunnels of lengths 1,600 and 2,700 feet respectively, and a siphon crossing at Milk River will be required. With the exception of the headworks, the Milk River siphon and a crossing for Little Porcupine Creek, the structures required will be comparatively small and such as are required chiefly for operation and maintenance, such as sluice-ways and turnouts.

Upwards of 50,000 acres of first class second bench land, unusually well adapted to irrigation, will be covered by the canal system outlined for first construction. There are no large engineering problems involved in the projected work nor is there any particularly heavy work to be encountered. The irrigable land is traversed from end to end by the transcontinental line of the Great Northern Railway along which stations are now located at intervals of about seven miles and which will materially reduce the construction costs of the works and insure the irrigators first class transportation facilities for surplus products.

In designing the works, the same policy has been adopted and will be followed as has governed design and construction of Reclamation Service projects. The projected system is very similar to the Lower Yellowstone Project work just completed and now in full commission, except that the features on Fort Peck Project are not of such magnitude and transportation facilities are of the best.

The estimates for the Fort Peck work are based upon current prices, at which it is believed the work can be completed in its entirety. It is estimated that the total cost of works to cover 50,000 acres including lateral canals, distributaries delivering water to each allotment, and an adequate system of waste water ditches, will be about \$40 per acre. In utilizing Indian labor in so far as practicable with consequent increased cost for engineering and superintendence due to the longer period of construction, it is possible that the cost may be increased 25 percent.

It is proposed to make final locations, immediately assemble and organize the forces and begin construction work as soon as possible in the vicinity of Frazer Station, the upper limit of the land to be irrigated by gravity from the main canal. As soon as it is practicable, it is proposed to start work at several points throughout the length of the Reservation in order to give as large a number of Indians work as near their homes as practicable. It is proposed at first to let no contracts for such work as can be performed by the Indians and to employ but little outside labor. In case it is found that the Indians do not care to perform the work at a reasonable cost, the letting of small contracts will then be considered. The policy now in operation upon works under the direction of the Reclamation Service upon other Indian Reserva-

tions, of furnishing Indian employees with subsistence stores, supplies and forage at actual cost, will be carried out upon the Fort Peck work.

We are unanimous regarding all of the features of the project, the engineering solution of the problems presented, the policy outlined for beginning and prosecuting the work, and the probable cost of the same.

Very respectfully,

(Signed) CHAS. P. WILLIAMS.  
H. N. SAVAGE.  
W. H. SANDERS.

UNITED STATES RECLAMATION SERVICE,  
*Washington, June 29, 1909.*

COMMISSIONER OF INDIAN AFFAIRS.

SIR: Enclosed herewith is copy of a report of the Board of Engineers, dated June 14, upon the irrigation of the Fort Peck Indian Reservation.

It is proposed, if your office finds no objection, to take up this work along the plan outlined in this report.

In copying this report the estimated cost has been omitted for the reason that being wholly preliminary the final cost is likely to deviate materially from it. The Engineers have estimated the cost in a broad way at about \$40, but the fluctuation in cost of materials and labor, and the unforeseen contingencies that arise in such construction may cause a considerable increase above that figure.

Very respectfully,

(Signed) F. H. NEWELL,  
*Director.*

OFFICE OF INDIAN AFFAIRS,  
*Washington, July 12, 1909.*

The DIRECTOR OF THE RECLAMATION SERVICE.

SIR: The Office has received your letter of June 29, transmitting a copy of the report of the Board of Engineers, dated June 14,

on the proposed irrigation system for the Fort Peck Indian Reservation and also your letter of July 1 forwarding a copy of a preliminary report dated March 3, 1909.

The Office sees no objection to taking up the work in accordance with the plan outlined. Will you kindly advise whether copies of these reports were sent to Chief Engineer Code and if not can you furnish him with them?

Very respectfully,

(Signed) F. H. ABBOTT,  
*Acting Commissioner.*

# FORT SUMNER PROJECT

BUREAU OF RECLAMATION,  
*Amarillo, Tex., Region 5, October 7, 1946.*

To: Commissioner, Bureau of Reclamation  
From: Regional Director  
Subject: Rehabilitation Plan for Fort Sumner Project—New Mexico

## INTRODUCTION

1. A plan for rehabilitation of the Fort Sumner Irrigation District, adjacent to the Pecos River in De Baca County, east-central New Mexico, is presented in this report. It is intended to meet the urgent needs of the area and develop its potentialities through construction of a new diversion dam and rehabilitation of existing irrigation and drainage systems.

2. The report was prepared for the Department of the Interior by the Bureau of Reclamation. Substantiating materials on which it is based are appended. I recommend that you present the report for appropriate departmental action with a view to obtaining Congressional authorization for construction of the necessary works.

## AUTHORITY FOR REPORT

3. This report is authorized to be made by virtue of Federal Reclamation Laws (act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplemental thereto).

\* \* \* \* \*

## DESCRIPTION OF AREA

### Location and Resources

5. The Fort Sumner Project is located in the east-central part of New Mexico, near the town of Fort Sumner (see project map preceding page 1). The project lands lie entirely within the



boundaries of the Fort Sumner Irrigation District, forming a narrow strip extending 12 miles along the east bank of the Pecos River. Rolling plains devoted to ranching surround the area.

6. The district contains approximately 8,000 acres of land, of which 6,500 acres would be irrigated. The balance of the district largely is in roads, ditches, dikes and waste lands along the river.

\* \* \* \* \*

#### NEED FOR DEVELOPMENT

20. Rehabilitation of the Fort Sumner Irrigation District works, including construction of a stable diversion dam, is vitally needed to eliminate the constant threat of economic and social distress which would result to the residents of the area and adjoining vicinity from impairment of the district water supply. It also is needed to provide for more beneficial use of the district's land and water resources.

\* \* \* \* \*

#### PLAN OF REHABILITATION

23. The rehabilitation plan has been designed to provide security for the project area and utilize its land and water resources to the greatest practical extent. The irrigated acreage would be increased to 6,500 by more efficient distribution of the district's decreed water supply and improved drainage.

24. The principal works in the plan include:

(a) Construction of a new concrete diversion dam 150 feet downstream from the damage dam;

(b) Rehabilitation and enlargement of the present canal system;

(c) Installation of an adequate pumping plant to deliver water to the high line canal;

(d) Rehabilitation and extension of the drainage system.

\* \* \* \* \*

27. The project would be operated by the Bureau of Reclamation until the end of the first full crop year after completion of construction. Subsequently, it would be operated by the Fort Sumner Irrigation District under supervision of the Bureau.

\* \* \* \* \*

#### CONCLUSION

39. Construction of the project is needed to stabilize and permit further development of the economy of the immediate and adjoining areas. The precarious condition of the diversion dam and inadequacy of other district works have hampered development of

the area's resources and present a serious threat to continued productiveness of a large area.

40. Portions of the Pecos River flows to which the Fort Sumner Irrigation District has title and which are appurtenant to the project lands are adequate for irrigation of the project lands.

41. The plan of rehabilitation is justified economically by the benefits to the area, the surrounding region and the Nation. The ratio of estimated costs to measurable benefits is 1 to 2.38. In addition, the project would provide benefits not appraisable in dollar returns but which, nevertheless, are real.

42. The people of the area have evidenced their desire to proceed with the project. The plan is feasible as to engineering and is consistent with presently conceived development plans for the remainder of the Pecos River Basin.

### RECOMMENDATIONS

43. It is recommended that:

(a) The plan of rehabilitation, as described in this report, be approved.

(b) The following principal works and such related works as may be incidental thereto, constituting the Fort Sumner Project, New Mexico, be authorized to be constructed, operated and maintained by the Bureau of Reclamation, Department of the Interior, substantially in accordance with the plans set forth in this report, with such modifications, omissions or additions to the works as the Commissioner of Reclamation, with the approval of the Secretary of the Interior, may find proper for carrying out the project to the end of providing water for the irrigation of approximately 6,500 acres of land in the acres indicated in this report, and of accomplishing the other purposes of the project, to wit:

(1) Construction of a diversion dam,

(2) Rehabilitation of the irrigation distribution system,

(3) Rehabilitation and extension of the drainage system.

(c) That the Bureau of Reclamation be authorized to perform land preparation on a reimbursable basis to the extent requested by landowners and deemed desirable by the Secretary of the Interior.

(d) That said Fort Sumner Project, New Mexico, be authorized to be constructed, operated, and maintained in accordance with the Federal Reclamation Laws (act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplemental thereto);

*Provided*, (1) That this report shall be deemed to satisfy the requirements of the Federal Reclamation Laws governing the submission to the President and Congress of a finding of engineering feasibility. (2) That the water users be required, by contract with the United States, to pay, during the useful life of the project and at the maximum rate which in the judgment of the Secretary they can reasonably be expected to pay, the construction cost of the project; and that, during the period of contract with

the United States, they shall pay for or otherwise provide adequate operation and maintenance, including replacements, of project works.

(Signed) WESLEY R. NELSON.

BUREAU OF RECLAMATION,  
*Washington, March 5, 1947.*

The SECRETARY OF THE INTERIOR.

SIR: A plan for the rehabilitation of the Fort Sumner Irrigation District, along the East Bank of the Pecos River, downstream from the town of Fort Sumner, De Baca County, New Mexico, is presented in this report which is based on the accompanying report of the Regional Director, Amarillo, Texas, dated October 7, 1946, and entitled, "Plan for rehabilitation of Fort Sumner Project, Pecos River, New Mexico." The Fort Sumner Project plan has been formulated to meet the urgent needs of the area by protecting and expanding its present economy through rehabilitation of an existing irrigation district.

Irrigation, essential for successful farming in this semi-arid area, was first initiated in 1863, and has been practiced continuously since 1903. The present Fort Sumner Irrigation District, which now operates the development, was organized in 1919. The district comprises about 8,000 acres of land. About 5,000 acres have been under irrigation in recent years, although a total of 6,650 acres was under irrigation in 1937. The development has been hampered by repeated failures of diversion dams constructed to serve the lands and by the ensuing financial difficulties. The district's existing diversion dam is in a precarious condition due to flood damages and the canals, the laterals, and drains, as well as the general farm improvements, are being allowed to deteriorate because of the land owners' fears that new floods might wash out the existing diversion dam and destroy their investments.

The project would protect the existing development against further financial loss due to failure of existing works and would provide sustained irrigation of 6,500 acres of irrigable land within the boundaries of the Fort Sumner Irrigation District (1,500 acres more than are now irrigated) through a more efficient distribution of the district's ample water supply based on its decreed rights and through improved drainage. The principal works in the rehabilitation plan include: (1) construction of a new concrete diversion dam on a firm foundation to replace the present damaged structure; (2) rehabilitation and enlargement

of the canal and drainage systems; and (3) installation of an adequate pumping plant to deliver water to the highline canal. The proposed construction is feasible from an engineering standpoint. The estimated cost of construction based on 1946 prices is \$1,798,000, all of which is properly allocable to irrigation.

As a test of the feasibility of this project, in accordance with the Federal Reclamation laws, consideration has been given to the average annual rate of repayment which could be made by the organized irrigation district representing the water users in the project area. It is estimated that the Fort Sumner Irrigation District would be able to repay \$26,000 annually toward the total construction cost in addition to payment by the district of the cost of operation and maintenance. This repayment is believed to be a reasonable allowance out of the annual gross crop income after suitable allowances are made for the cost of farm operation, an adequate level of living for the farm family and interest on investment. At this rate of \$26,000 annually, the irrigation district would be able to repay \$1,040,000 of the estimated construction costs over a period of forty years. If this period were extended, the irrigation district would be able to repay proportionately more of the construction costs. It would be able to repay \$1,300,000 in fifty years, \$1,560,000 in sixty years, and the total of \$1,798,000 (based on 1946 construction prices) in sixty-nine years. This latter period is considered to be well within the useful life of the project. The water users have expressed a willingness to continue annual payments toward the capital cost of the project beyond the normal forty-year repayment period, and have urged immediate construction of the project.

In his analysis of the project, the Regional Director has also considered the benefits which would accrue to the region and to the Nation as a whole as a result of the proposed work. There is no simple direct relationship between repayment ability and these over-all benefits of the project. The portion of the cost of the project which the farmer can afford to repay is necessarily only a portion of the returns which he receives. Similarly, the income to the farmer is only a portion of the benefits to be received by the region and the Nation. The benefits from the project include the safeguard of the capital investment already made as well as the support to the economy of the surrounding area, and the generation of commerce and industry. The annual benefits are estimated to be \$218,105 compared to the annual cost of \$91,350 (amortization of the rehabilitation costs in 50 years at 3 per cent equalling \$69,900 annually plus operation and maintenance costs of \$21,450 annually.) The resulting ratio of benefits to costs is 2.38 to 1.00. This analysis shows the project to be justified from the standpoint of the over-all economic results which will accrue from its construction. Means are not available for direct repayment to the United States of sums equivalent to the benefits which will accrue to the region and to the Nation from construction of the project. As pointed out above, however, the United States will recover the construction cost of the project.

I recommend that rehabilitation of the Fort Sumner Irrigation District be authorized in accordance with plans set forth in the

attached report of the Regional Director dated October 7, 1946, with such modifications as the Commissioner of Reclamation, with your approval, may find proper. I also recommend that this authorization be on the basis that the water users be required to pay, during the useful life of the project and at the maximum rate which in the judgment of the Secretary they can reasonably be expected to pay, the construction cost of the project; and that, during the period of contract with the United States, they shall pay for or otherwise provide adequate operation and maintenance, including replacements, of project works. There is, of course, the alternative that Congress may provide non-reimbursable funds for any portion of the construction cost which is beyond the ability of the water users to repay in that period which Congress may consider suitable for repayment.

I recommend that you adopt this report as your proposed report on the rehabilitation of the Fort Sumner Irrigation District and that you authorize me in your behalf to transmit copies of this letter and the attached proposed report to the affected States of New Mexico and Texas and to the Secretary of War in accordance with the requirements of the Flood Control Act of 1944; and to the head of the agency exercising administration over the wildlife resources of the State of New Mexico in accordance with the requirements of Public Law No. 732, 79th Congress.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved March 13, 1947.

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

## PROVISIONS OF SECOND DEFICIENCY APPROPRIATION ACT, 1948

[Extract from] An act making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1948, and for other purposes. (Act June 25, 1948, 62 Stat., 1027, Public Law 785, 80th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, to supply deficiency appropriations for the fiscal year ending June 30, 1948, and for other purposes, namely:

\* \* \* \* \*

Fort Sumner irrigation district, New Mexico: For the purpose of aiding and assisting the Fort Summer Irrigation District in New Mexico to protect its diversion dam and the existing works of said irrigation district from flood damage, in the event the Secretary of the Interior determines that flood damage is or appears to be imminent, \$60,000, to be reimbursable and to remain available until expended.

# FRENCHTOWN PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, September 11, 1935.*

THE PRESIDENT,  
THE WHITE HOUSE.

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*) indicated that Section 4 of the Act of June 25, 1910 (36 Stat. 835), is applicable to irrigation projects constructed under the National Industrial Recovery Act and this report on the Frenchtown Project is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924 (43 Stat. 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 383), and acts amendatory thereof or supplementary thereto, shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat. 701). provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features requiring investigation and report under this subsection will be discussed in connection with the Frenchtown Project in Montana in the order in which they are presented, as follows:

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<sup>1</sup> The *Frenchtown Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

## WATER SUPPLY

### Source

The source of the water supply for the project is the Missoula River. Pursuant to the laws of the State of Montana, the French-town Irrigation District has acquired the right to use 200 second feet of water with a priority date of October 14, 1933. There are some 7,000 acres of irrigable land in the project.

### Adequacy

Water supply studies made by the engineers of the Bureau of Reclamation and engineers practising their profession in Montana and familiar with irrigation developments having the Missoula River as a source of water supply, indicate that the mean annual yield of the Missoula River will provide an ample water supply for the project under the priority acquired by the French-town Irrigation District.

## ENGINEERING FEATURES

### Diversion

A diversion will be required on the Missoula River. It is proposed to construct a low, concrete dam in a side channel of the river. The diversion works will raise the water surface of the river about four feet to permit diversion into the Main Canal of the Project.

### Main Canal

The Main Canal, with an initial capacity of 172 second feet, extends, with a gradual reduced capacity, from the diversion works northwesterly for a distance of seventeen (17) miles, terminating at a point in the vicinity of Buson, Montana. The Main Canal requires two (2) railroad crossings, two (2) metal flumes, ten (10) road crossings, thirty-two (32) farm bridges, twenty-two (22) drainage culverts, and twelve (12) flumes to carry water for rights with priorities senior to that of the project, and two (2) wasteways.

### Lateral System

Tapping the Main Canal at appropriate intervals, lateral ditches with smaller distributaries leading from them will convey the water to the boundaries of each farm unit of the project. The structures of the lateral system will be constructed of reinforced concrete.

## Drainage

Comparatively good drainage conditions exist on the project, but it is possible that individual and community drains will be required to relieve seepage in local areas.

### COST OF CONSTRUCTION

The estimated cost of construction is \$220,000, apportioned as to principal features as follows:

Diversion works .....	\$19,000
Main canal .....	82,800
Lateral system .....	45,800
Drainage system .....	37,500
Surveys, designs, inspection and general administration .....	34,900
Total .....	<u>220,000</u>

### LAND PRICES AND PROBABLE COST OF DEVELOPMENT

The repayment contract executed by the Frenchtown Irrigation District provides for an appraisal of the project lands by a Board of Appraisal to be appointed by the Department, such appraisal to give no speculative value to lands on account of the prospective possibility of securing water through the project works. Improvements, including existing irrigation works and water rights at the time of the appraisement, will be appraised separately. Under the terms of the repayment contract the owners of the project lands are required to execute recordable contracts agreeing to sales of their lands at prices not exceeding those fixed by the Board of Appraisal; the execution of such contracts being a condition precedent to eligibility for water service from the project works.

All persons having the beneficial ownership of more than 160 irrigable acres of project land are required, under the terms of the repayment contract, to select the 160 acres to be retained for development under the project, failing in which the selection will be made by the Department or the Frenchtown Irrigation District.

All lands held in private ownership in excess of 160 acres of irrigable land will be appraised in a manner designated by the Department and the sale price thereof fixed by the Department on the basis of its actual bona fide value without reference to the proposed construction of irrigation works. The execution of recordable contracts agreeing to sale of excess lands in accordance with the appraisal and on terms satisfactory to the Department, is a condition precedent to eligibility for water service for such lands from the project works.

The control of speculation in the project lands will safeguard the settlers of the project against the payment of excessive prices for farms on the project, and, with the exercise of reasonable



prudence by the individual in his farming program, the cost of the development of a project farm will be within the economic limits conducive to successful farm operations.

#### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The prevailing crop is now wheat. Grain of some kind is about all that can be raised under dry farming conditions. The irrigated sections in the vicinity raise very little grain but produce alfalfa, sugar beets, fruits, vegetables and similar crops in abundance. The soil and climate are well adapted to the production of Netted Gem potatoes which command the highest prices on the market. Feeding operations have been limited by the scarcity of hay. With an ample feed supply this industry should be very attractive on account of the large areas of forest reserve nearby for summer range.

The project is exceptionally well situated in regard to markets. Butte, Helena, Missoula and Spokane are all within a radius of 250 miles. These towns make it possible to market strawberries, raspberries and vegetables, which can be produced on the project and for which a high return per acre can be expected. Two trans-continental railroads and two main U. S. highways provide excellent transportation facilities. A sugar beet factory is located at Missoula. The 1933 crop brought the growers \$5.65 per ton which is the highest of any of the inter-mountain factory districts and is due to the nearby markets and consequent short haul on sugar.

The project is considered feasible from both engineering and economic standpoints. The estimated cost is well within the ability of the land to pay. The project can be justified by the fact that the land is all settled and in production; to place it under irrigation would eliminate wheat acreage and increase areas devoted to sugar beets, small fruits, potatoes and other crops of which there is no surplus and, due to the subdivision of large holdings, provide farm homes for many additional families in a locality having ideal living conditions, exceptional educational advantages due to the State University at Missoula, and unsurpassed recreational opportunities.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The next declaration required is that the cost of construction will probably be returned to the Federal government. This is interpreted to mean that it will be returned within the period provided in the Frenchtown Irrigation District repayment contract, which is 40 years from the time the Secretary issues public notice that water is available from the project works.

The estimated cost of construction is \$220,000.00, which amount assumes a possible expenditure of approximately \$40,000.00 for future drainage requirements. The repayment contract executed

by the District provides for the repayment of \$180,000.00 or the amount estimated as sufficient to construct the irrigation works exclusive of drainage works. The District has agreed to repay the irrigation system construction cost at the rate of \$4,500.00 per year for forty years. The project lands are believed to be possessed of sufficient productive ability to make the required annual payments on the irrigation system construction cost and in addition, to assume additional payments to meet the cost of drainage if the same be required as a result of irrigation.

The favorable conditions heretofore recited justify the belief that the project will return the cost thereof.

The project is regarded as one well suited to the needs of settlers and appropriate for development as a Federal reclamation project. I, therefore, recommend its approval and the issuance of the necessary authority to this Department to make contracts for its construction, and to proceed with the work.

Sincerely yours,

(Signed) CHARLES WEST,  
*Acting Secretary of the Interior.*

Approved September 21, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# FRUIT GROWERS' DAM PROJECT<sup>1</sup>

THE SECRETARY OF THE INTERIOR,  
*Washington, January 5, 1938.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report on the reconstruction of the Fruit Growers' Dam, near Austin, Colorado, is made to you under the provisions of Section 4 of the Act of June 25, 1910 (36 Stat. 835).

Section 4 of this Act provides in effect that after the date of said Act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388) and Acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, (43 Stat. 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes and that it will probably return the cost thereof to the United States.

The Fruit Growers' Dam is located on Alfalfa Run, three miles north of Austin, Colorado. The original dam was constructed in 1898 and was raised at least twice, the last time in 1936. The Fruit Growers' Ditch and Reservoir Company, a Colorado corporation, owned and operated the reservoir and ditch system. The dam was breached June 13, 1937, to avoid a threatened failure. Excessive damage resulted in Austin from the heavy storage release, as the breach widened and deepened rapidly. Immediate reconstruction is necessary to avert heavy losses to the irrigators who have depended on the reservoir for water supply, as precipitation is too low for crop growth.

## WATER SUPPLY

A small part of the stored waters is obtained from Surface Creek through the Alfalfa and Forrest ditches, and from local

<sup>1</sup> The *Fruit Growers' Dam project* was initiated under the provisions of the Emergency Relief Appropriation Act of 1937.

storm runoff and return flow waters draining from higher irrigated lands. Most of the water, especially in the drier years, is obtained from Current Creek by a ditch two miles long which has a capacity of about 100 second-feet. Based on past operations, the reservoir is expected to fill every year, providing ample water supply for all the irrigated lands of the project.

#### ENGINEERING FEATURES AND CONSTRUCTION COST

The dam which failed was 45 feet in height and 700 feet in length along the crest. The proposed dam is an earth and rock filled structure, 53 feet in height, with a crest length of 1,500 feet and an embankment volume of 160,000 cubic yards. The dam will be located immediately downstream from the earlier structure, and a portion of the old dam will be used as the upstream toe of the new structure. The water surface of the reservoir will be raised two feet, increasing its storage capacity from 3300 acre-feet to 4100 acre-feet. The estimated cost, including engineering, overhead and contingencies, is \$200,000.

#### LAND PRICES AND ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land area in the project covered by ditches from the Fruit Growers' Reservoir amounts to 3500 acres, of which 2050 acres were recently irrigated. The non-irrigated area is largely unfit for irrigation. The most important crops are peaches and small fruits. Alfalfa, sugar beets and general crops also are grown. There are many fine rural homes which have a domestic water supply and all modern conveniences. Lands are assessed at an average value of \$90 per acre, and the average value of improvements is about \$7500 per farm.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The payment of construction costs will be derived from the sale of water for irrigation purposes. Based on a cost of \$200,000, and repayment according to terms of the Reclamation law in 40 years without interest, the annual charge will be \$5,000. Operation and maintenance of the reservoir feeder canal, the reservoir and the distribution system, and the costs accruing from administration, accounting and legal matters may total \$5,000 per year. If the present area of 2050 acres is continued, annual costs will be \$5 per acre per year.

A repayment contract will be executed before any waters are delivered, but it is desirable to commence construction of the dam without delay, and complete negotiations of contracts during the period of construction.

The Fruit Growers' Ditch and Reservoir Company is in debt for at least \$16,000, and damage suits are threatened on account of the failure of the dam. The financial condition of the

irrigators is not clear, and it may be necessary to graduate the construction charge installments so that the payments will be small during the early years.

The lands are now actually settled and utilized for farm homes. They are well-improved and in full production. It is believed the water users can easily meet an eventual average annual charge of \$5 per acre, per annum, and probably an average charge as high as \$10 per acre could be paid in later years. It is, therefore, believed that the repayment of construction charges is well within the ability of the water users and that the cost of construction will be returned.

#### FINDINGS REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusions that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

An allocation of \$200,000 from emergency funds was made on October 7, 1937, to the Department of the Interior, Bureau of Reclamation, for the construction of the Fruit Growers' Reservoir. In order to complete the dam in time to store water for the season of 1938, and to prevent severe loss from the death of fruit trees, grape vines, and other perennial crops, I recommend that the construction of the dam be started at the earliest possible date.

Sincerely yours,

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

Approved January 11, 1938.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

BUREAU OF THE BUDGET,  
*Washington, January 13, 1938*

The Honorable, The SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: There is transmitted herewith the letter of Acting Secretary Chapman to the President of January 5, 1938, with reference to the Fruit Growers' Dam near Austin, Colorado, which was approved by the President on January 11, 1938.

Very truly yours,

(Signed) D. W. BELL,  
*Acting Director.*

# GARDEN CITY PROJECT<sup>1</sup>

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Garden City, Kans., Sept. 5, 1905.*

CHIEF ENGINEER,  
*U. S. Geological Survey, Reclamation Service,  
Washington, D. C.*

SIR: The Board of Engineers designated to consider the Garden City Project, Kansas, reports as follows:

The irrigation system proposed will depend upon the underground waters pumped from a series of wells in the coarse gravels in the bottoms of the Arkansas River valley, about twelve miles west of Garden City.

This water is to be carried to the Farmers Ditch and thence distributed to 8,600 acres of first class land lying under the existing ditch system.

The underground water supply has been explored under the direction of Mr. C. S. Slichter, and from his examinations, it appears that it is derived from the rain falling on the sandy porous soil, and from the seepage from the Arkansas River during periods of high water. This underground supply will be ample for 8,600 acres with two acre-feet per annum, and the indications are that a larger area can eventually be served.

The land in question is all in private ownership, and the existing irrigation system is owned by the Finney County Farmers Irrigation Association. The attempt to furnish water for the irrigation of these lands by a gravity system supplied by diversion from the river has proved a failure.

The estimated cost of the pumping plant, as outlined in the accompanying detailed statement is \$258,000, or \$30 per acre for 8600 acres. The annual charge for maintaining the plant in serviceable condition is estimated at 75 cents per acre. The annual cost for pumping and distribution is estimated at 77 cents per acre foot or \$1.45 per acre at the rate of two acre feet per annum, which is regarded as sufficient for attaining the best results.

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<sup>1</sup> The *Garden City Project* was found feasible under the original Reclamation Act prior to its amendments; however, the project was unsuccessful. Act of Congress, June 5, 1920, 41 Stat. 1054, provided that contracts affecting lands in the Garden City project, for the supply and use of water from the irrigation plant of the United States, be cancelled and the liens upon the lands created by such contracts were released and discharged.

These estimates are conservative and will probably cover all contingencies for increasing or extending the plant which may be necessary to furnish sufficient water supply.

From these estimates it appears that the maximum annual expense until the charges under the reclamation act have been fully paid will be \$5.20 per acre per annum, which will be diminished at the rate of 77 cents per acre-foot, if less than two acre feet of water are used.

In the opinion of this board the land in question will sustain such a charge.

The residents of this section will be ready to subscribe for water at this rate and have expressed their willingness to comply with all the requirements of the reclamation act.

The Finney County Farmers Irrigation Association proposes to transfer its irrigation system to the water users association now in process of formation, and at a recent meeting, informal pledges of subscription to the stock of the Water Users Association were given for practically the total of 8,600 acres entitled to water from the system.

In pursuance of these considerations the board recommends:

1. That the project be constructed as soon as the water users association has been organized in satisfactory form and practically the entire area of 8,600 acres under the Farmers Ditch System has been subscribed to the Water Users Association.

2. That the preparation of plans and specifications for construction be undertaken at once, so that there shall be no delay in beginning construction after the organization of the Water Users Association has proceeded to the proper stage.

Respectfully,

(Signed) MORRIS BIEN,  
*Supervising Engineer.*  
H.A. STORRS,  
*Elec. and Mech. Expert.*  
O. H. ENSIGN,  
*Cons. Engr. and Elec. Expert.*  
CHAS. S. SLICHTER,  
*Consulting Engineer.*  
W. H. SANDERS,  
*Consulting Engineer.*

SEPTEMBER 14, 1905.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: During two seasons a field party has been engaged on the investigation of underground waters and possible reclamation in the valley of the Arkansas near Garden City, Kansas.

Measurements have been made of the velocity of the underground waters and the probable quantity which may be expected from the large pumping projects. The ground is remarkably open and the water plane close to the surface so that a large water supply may be obtained by a very moderate lift.

All attempts to furnish water for the irrigation of lands in this vicinity by gravity systems supplied by diversion from the river, have proved failures. This is due to the rapid loss of water from the river to the underground reservoir and the uncertain supply of water in the river.

The investigations of the engineering parties have led to plans for a pumping system which will utilize what is known as the Farmers Canal for distribution purposes and give an ample water supply for 8,600 acres of land. The plans have been carefully reviewed by a board of engineers consisting of Messrs. O. H. Ensign and H. A. Storrs, electrical and mechanical experts; Messrs. Chas. S. Slichter and W. H. Sanders, consulting engineers, and Mr. Morris Bien, supervising engineer. They report that an ample supply of water may be furnished at a cost for installation of not to exceed \$258,000 or \$50 per acre for 8,600 acres and that the annual cost for pumping and distribution is estimated at about \$1.50 per acre per annum. They state that those estimates are conservative and will probably cover all contingencies for increasing or extending the plant which may be necessary to furnish sufficient water supply.

From these estimates it appears that a maximum annual expense until the charges under the Reclamation Act have been fully paid will be \$5.20 per acre per annum, which will be diminished in such years as the rain-fall is sufficient to reduce the requirements for irrigation water. The board reports that the lands in question will sustain such a charge and that the residents of this section will be ready to subscribe for water at this rate and have expressed their willingness to comply with all the requirements of the Reclamation Act. The land is all in private ownership.

The Finney County Farmers Irrigation Association proposes to transfer its irrigation system to the Water Users' Association now in process of formation and at a recent meeting informal pledges of subscription to the stock of the Water Users' Association were given for practically the total of 8,600 acres, entitled to water from the system.

In pursuance of these considerations the board recommends that the project be constructed as soon as the water users association has been organized in satisfactory form, and practically the entire area of 8,600 acres under the Farmers Ditch system have been subscribed to the water users association.

I have the honor to concur in the recommendations of the board and to recommend that the project be approved, and that I be authorized to inform the water users association in Finney County that the project outlined by the engineers will be constructed by the Reclamation Service as soon as practicable after the complete subscription in the usual manner of all the lands to be benefited in order to insure the return of the fund in accordance with the provisions of the Reclamation Act.



In this connection I desire to call attention to the fact that this project has not before been definitely brought to the attention of the Department, also that an examination of the reclamation fund justifies the belief that there will be ample funds for its construction.

Very respectfully,

(Signed) H. C. RIZER,  
*Acting Director.*

OFFICE OF THE SECRETARY,  
*Washington, September 16, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Concurring in the recommendation by the board of engineers named in your communication of the 14th instant and of the Acting Director, the Garden City, Kansas, Reclamation Project is hereby approved and you are authorized to inform the Water Users Association in Finney County in said State that the project outlined by the engineers will be constructed by the Reclamation Service as soon as practicable after the complete subscription in the usual manner of all the lands to be benefited in order to insure the return of the fund in accordance with the provisions of the Reclamation Act.

Very respectfully,

(Signed) THOS. RYAN,  
*Acting Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, September 18, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to Departmental letter of the 16th instant approving, on your recommendation, the Garden City irrigation project, I have to advise you that after further consideration of the matter and of the statement filed with your letter of Septem-

ber 1, 1905, in the Owens Valley matter in which you show a probable deficit of \$2,350,000.00 in the Reclamation Fund for the fiscal year ending June 30, 1907, said action of the 16th instant approving said Garden City project is hereby recalled and canceled for further consideration of said project by the Department.

The Department does not feel justified in taking any action that would render even probable a deficit in the Reclamation Fund at any time.

Very respectfully,

(Signed) THOS. RYAN,  
*Acting Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, October 5, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to my letter of September 18, in the matter of the Garden City Reclamation Project, I have to advise you that after consideration of the matter and of your letter and recommendation of September 14, 1905, in relation thereto said project is hereby approved and you are hereby authorized in accordance with your said recommendation to inform the Water Users Association in Finney County, that the project outlined by the engineers will be constructed by the Reclamation Service as soon as practicable after the complete subscription in the usual manner of all the lands to be benefited in order to insure the return of the fund in accordance with the provisions of the Reclamation Act.

This action is taken in view of the statement of your said letter of September 14, 1905, "that an examination of the reclamation fund justifies the belief that there will be ample funds for its construction."

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# GILA PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, June 8, 1937.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report is made to you on the First Division of the Gila Reclamation project, Arizona, under Section 4 of the Act of Congress of June 25, 1910, 36 Stat., 385 and under Subsection B of Section 4 of the Act of December 5, 1924, 43 Stat., 701.

Section 4 of the Act of June 25, 1910, provides in effect that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4 of the Act of December 5, 1924, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States. (43 Stat. 702).

By the Act of Congress of June 22, 1936, 49 Stat., 1757, 1784, \$1,250,000 was appropriated for the continuation of construction of the Gila project, under the reclamation laws, the project having been initiated (1) by an allotment of \$75,000 under Title II of the National Industrial Recovery Act of June 16, 1933, 48 Stat. 195, and (2) by allocation of \$2,000,000 under the Emergency Relief Appropriation Act of 1935, approved April 8, 1935, 48 Stat., 115.

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<sup>1</sup> The *Gila Project* was initiated under the provisions of the Emergency Relief Appropriation Act of 1935.

The Gila project comprises the irrigable lands on both sides of Gila River, in southwest Arizona, susceptible of irrigation from the Colorado River, within feasible pumping lifts, with cheap power which can be made available for this purpose from developments on the Lower Colorado River. No other source of water exists. Lands agriculturally suitable for irrigation total 585,000 acres below elevation 600, and this total may in the future be modified either way in the light of operating experience with the initial unit. The project is unusually well adapted to development by divisions in this manner.

The project for which authorization is now desired, comprises an initial division of 150,000 acres in the immediate vicinity of Yuma, Arizona, including 10,000 acres already irrigated from Colorado River, but requiring better facilities.

The various features requiring investigation and report under Subsection B, Section 4, Act of December 5, 1924, *supra*, will be discussed in the order in which presented in that subsection, as follows:

### WATER SUPPLY

The flow of Colorado River, regulated by the Boulder Dam, will be ample for the project as well as all other contemplated drafts thereon.

Section 4 of the Boulder Canyon Project Act (45 Stat. 1058) reads:

The states of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River Compact, there shall be apportioned \* \* \* to the state of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity.

While an agreement has not been concluded by the states, there is no doubt that such an agreement when reached will insure a full water supply for at least the initial division of the project. In all sales of water rights it will be necessary to prescribe that the water supply of the project is subject to the Colorado River Compact, and to the Boulder Canyon Project Act and to the sales of water under the compact and said act and to the treaty which it is anticipated will be made with Mexico fixing that country's rights in the flow of the Colorado River.

### ENGINEERING FEATURES

Project waters will be diverted at the eastern end of the Imperial Dam being constructed to supply primarily the All-American Canal. A canal of 1900 second-feet capacity, 17 miles long, will lead to a main pumping plant located 12 miles east of Yuma, crossing the Gila River enroute. Here waters will be lifted to canals at two levels. Two pumping plants further on will relift

to still higher levels. The series of parallel canals leading from the pumping plants will serve a compact area lying between the present Yuma project, and the Fortuna Mountains, from Gila River to the Mexican boundary, a small part by gravity, and the balance with varying lift up to 450 feet. Power for the operation of the pumps will eventually be secured from Parker Dam, now under construction for the Metropolitan Water District of Southern California where the United States reserved one-half the power possibility, but initially it is expected to utilize surplus power at Boulder Dam. No unusual engineering problems exist.

### COST OF CONSTRUCTION

The cost of the first division of the project is estimated as follows:

Dam, headworks and desilting works.....	\$1,397,910
Canal system .....	4,217,612
Pumping plants .....	4,793,580
Distribution system (139,000 acres).....	8,475,862
Transmission line .....	590,000
Total .....	<u>19,474,964</u>

This cost would be distributed at the rate of \$134 per acre for the 139,000 acres of mesa lands and at \$74 per acre for the 11,000 acres of north and south Gila lands. The difference in price is due to the fact that no distribution system must be constructed for the north and south Gila lands.

### LAND PRICES AND PROBABLE COST OF DEVELOPMENT

The following quotation is taken from the "Report of the Feasibility of Gila Valley Project, Arizona," by a special non-bureau committee comprised of W. H. Code, William Peterson, and W. L. Powers:

The land ownership is largely Federal with a moderate amount of state and some private holdings.

The type of farm which seems best is a general 80 acre seed alfalfa, seed flax, cotton, sorghum, and forage crop with livestock and winter vegetables, or 40 acres with semitropical horticultural enterprises included.

The investment required to bring such farms into full production is estimated from \$6000 to \$12,000.

The crops which can be most successfully grown on Gila Project soils include alfalfa for seed and hay, flax seed, cotton, including the long staple type, winter barley, sorghum, lettuce, honey dew melons, carrots and various winter vegetables. Horticultural crops which succeed are pecans, dates, grapefruit, late winter oranges, limes, tangerines, grapes, and strawberries.

Privately owned lands not already under irrigation will be appraised and holdings in excess of the needs for individual farms would be required to be sold at desert land prices.

## FINDING REGARDING FEASIBILITY OF PROJECT

The data herein presented justify the conclusion that the first division of the project is feasible from an engineering and an economic standpoint and I accordingly so find and declare.

## ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The undeveloped lands of this project are of average fertility for desert lands, but are lacking in humus. They will need special attention over several years to reach full productiveness for the type of crops to which this semi-tropical region is adapted. With proper preparation the lands should produce crops of unusually large value.

With care in the selection of settlers, physically and financially equipped to carry on a proper development program, success in farming may be anticipated.

The demand for irrigated agricultural lands in the southwestern section of this country has always exceeded availability of such lands at reasonable prices.

## PROBABLE RETURN TO RECLAMATION FUND OF CONSTRUCTION COST

A finding is required that the cost of construction will probably be returned to the United States. This is interpreted to mean that it will be returned within the maximum period fixed by Reclamation Law, which is 40 years from the time the public notice that the works are completed is issued by the Secretary.

The average annual cost to cover operation and maintenance of the irrigation system and the repayment of the construction cost is estimated at \$8.06 per acre for the undeveloped lands. It is believed that with small initial annual construction charge installments, in order to enable settlers to utilize their resources in bringing their lands to a stage of full production, a repayment ability will be developed that will justify the belief that the cost of the project will be returned. An early beginning of the construction of this project is important to the end that the waters of the Colorado River, made much more usable by the Boulder Dam, will be placed in use within the United States before an extension of their uses in the Republic of Mexico results in a condition which may make it practically difficult in the future to limit the delivery of water to Mexico to the amounts that may be agreed upon by treaty and to retain for use in the United States an amount suitable for proper agricultural development.

Based upon the foregoing I find that the project is feasible, that the lands watered thereby are adaptable for actual settlement and farm homes, that the lands are in need of a water supply and that the project will probably return the cost thereof to the United States.

I recommend that the project, now in process of construction, be approved, and that authority be given to this Department to

proceed with the work and to make contracts and take any necessary action to construct and complete the project.

Sincerely yours,

(Signed) CHARLES WEST,  
*Acting Secretary of the Interior.*

Approved June 21, 1937.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

## RELOCATE BOUNDARIES OF GILA PROJECT

An act to relocate the boundaries and reduce the area of the Gila Federal reclamation project, and for other purposes. (Act July 30, 1947, 61 Stat. 628, Public Law 272, 80th Cong., 1st sess.)

\* \* \* That for the purpose of reclaiming and irrigating lands in the State of Arizona and other beneficial uses, the reclamation project known as Gila project, heretofore authorized and established under the provisions of the reclamation laws, the Act of June 16, 1933 (48 Stat. 195), and various appropriation Acts, is hereby reduced in area to approximately forty thousand irrigable acres of land (twenty-five thousand acres thereof situated on the Yuma Mesa and fifteen thousand acres thereof within the North and South Gila Valleys), or such number of acres as can be adequately irrigated by the beneficial consumptive use of no more than three hundred thousand acre-feet of water per annum diverted from the Colorado River, and as thus reduced is hereby reauthorized and redesignated the Yuma Mesa division, Gila project, and the Wellton-Mohawk division, Gila project, comprising approximately seventy-five thousand irrigable acres of land, or such number of acres as can be adequately irrigated by the beneficial consumptive use of no more than three hundred thousand acre-feet of water per annum diverted from the Colorado River, situate within the Wellton, Dome, Roll, Texas Hill, and Mohawk areas, is substituted for the land eliminated from the Yuma Mesa division and is hereby authorized: *Provided, however,* That the waters to be diverted and used thereby, and the lands and structures for the diversion, transportation, delivery, and storage thereof, shall be subject to the provisions of the Boulder Canyon Project Act of December 21, 1928, and subject to the provisions of the Colorado River compact signed at Santa Fe, New Mexico, November 24, 1922: *And provided further,* That the above limitations contained in this section are for the sole purpose of fixing the maximum acreage of the project and shall not be construed as interpreting, affecting, or modifying any in-

terstate compact or contract with the United States for the use of Colorado River water or any Federal or State statute limiting or defining the right to use Colorado River water of or in any State

SEC. 2. The Secretary is hereby authorized to acquire in the name of the United States, at prices satisfactory to him, such lands, interests in lands, water rights, and other property within or adjacent to the Gila project, which belongs to the Gila Valley Power District or the Mohawk Municipal Water Conservation District, as he deems appropriate for the protection, development, or improvement of said project: *Provided, however,* That the prices to be paid for the lands owned by the Gila Valley Power District, of Arizona, and heretofore officially appraised at the direction of the Commissioner of Reclamation, for the existing facilities of said district and of the Mohawk Municipal Water Conservation District, of Arizona, heretofore officially appraised at his request and determined by him to be useful to said project, shall not, in the aggregate, exceed \$380,000, and no portion thereof shall be paid until said districts have made arrangements satisfactory to the Secretary for the liquidation of their respective bonded, warrant, and other outstanding indebtedness.

SEC. 3. The Secretary is hereby authorized, to the extent, in the manner, and on such terms as he deems appropriate for the protection, development, or improvement of the Gila project, to sell, exchange, or otherwise dispose of the public lands of the United States within said project, the lands acquired under this Act, and any improvements on any such lands and to lease the same during the presettlement period only, provided such lands shall be disposed of to actual settlers and farmers as soon as practicable; to establish town sites on such lands; and to dedicate portions of such lands for public purposes. Contracts for the sale of such lands shall be on a basis that, in the Secretary's judgment, will provide the return in a reasonable period of years of not less than the appraised value of the land and the improvements thereon or thereto. Such lands may be disposed of in farm units of such sizes as the Secretary determines to be adequate, taking into consideration the character of soil, topography, location with respect to the irrigation system, and such other factors as the Secretary deems relevant: *Provided,* That the area disposed of to an individual shall, so far as practicable, not exceed one hundred and sixty acres. Sales to any individual shall be of not more than one farm unit. Any sums received by the United States from the disposition of said lands and improvements shall be covered into the reclamation fund, and credited to construction costs.

SEC. 4. Beginning at such date or dates and subject to such provisions and limitations as may be fixed or provided by regulations which the Secretary is hereby authorized to issue, any public lands within the Gila project and any lands acquired under this Act shall be, after disposition thereof by the United States by contract of sale and during the time such contract shall remain in effect, (1) subject to the provisions of the laws of the State of Arizona relating to the organization, government, and regulation



of irrigation, electrical power, and other similar districts, and (II) subject to legal assessment or taxation by any such district and by said State or political subdivisions thereof, and to liens for such assessments and taxes and to all proceedings for the enforcement thereof, in the same manner and to the same extent as privately owned lands: *Provided, however,* That the United States does not assume any obligation for amounts so assessed or taxed: *And provided further,* That any proceedings to enforce said assessments or taxes shall be subject to any title then remaining in the United States, to any prior lien reserved to the United States for unpaid installments under land-sale contracts made under this Act, and to any obligation for any other charges, accrued or unaccrued, for special improvements, construction, or operation and maintenance costs of said project.

SEC. 5. Notwithstanding any other provision of law, the general repayment obligation of any organization which may hereafter enter into a contract with the United States covering the repayment of any portion of the costs of construction of the Gila project may be spread in annual installments over such reasonable period, not exceeding sixty years, as the Secretary may determine. For the purpose of predicating the repayment obligations of the various lands within said project on their respective ability, as determined by the Secretary, to share the burdens thereof, he may provide for the equitable apportionment of said general repayment obligation to the lands benefited on a unit basis in accordance with the extent of the benefit derived from the project, the character of soil, topography, and such other factors as he deems relevant, and he may provide for a system of variable payments under which larger annual payments will be required during periods of above-normal production or income and lesser annual payments will be required during periods of subnormal production or income.

SEC. 6. There are hereby authorized to be appropriated, from time to time, out of any money in the Treasury not otherwise appropriated, such moneys as may be necessary to carry out the provisions of this Act.

SEC. 7. The Secretary is authorized to perform such acts, to make such rules and regulations, and to include in contracts made under the authority of this Act such provisions as he deems proper for carrying out the provisions of this Act; and in connection with sales or exchanges under this Act, he is authorized to effect conveyances without regard to the laws governing the patenting of public lands. Wherever in this Act functions, powers, or duties are conferred upon the Secretary, said functions, powers, or duties may be performed, exercised, or discharged by his duly authorized representatives.

SEC. 8. This Act shall be deemed a supplement to and part of the reclamation law. Nothing in this Act shall be construed to amend the Boulder Canyon Project Act of December 21, 1928, as amended by the Boulder Canyon Project Adjustment Act of July 19, 1940.

# GRAND VALLEY PROJECT

UNITED STATES RECLAMATION SERVICE,  
*Grand Junction, Colo., December 15, 1908.*

The DIRECTOR, UNITED STATES RECLAMATION SERVICE.

SIR: There is submitted herewith the report of the Project Engineer upon the Grand Valley Project. There is submitted herein the comment of the Project Board with such recommendations as the situation demands at this time. The report of the Project Engineer is accompanied by maps and drawings necessary to set forth the locations and the design of structures.

It appears from the report of the Project Engineer that the economic location of the High Line Canal westward from the mouth of the canyon of the Grand River is confined by the controlling topographic conditions within quite narrow limits. If the canal be lowered materially, a large area of very valuable land must be watered, if at all, by auxiliary pumping plants for which at the present time there is no certain or cheap permanent supply of power. If the canal be raised materially, it must be extended up the Grand River at prohibitive cost. The line, as at present located, takes advantage in a general way of such opportunities as are presented for cheap construction and has but one seriously objectionable feature, namely, it passes for about eight miles through orchard lands in the vicinity of Palisade and will cut a strip therefrom about 130 feet in width. This land has a present market value ranging from \$300 to \$2,500 per acre. This tract is a portion of the most valuable land in Colorado. It is divided into small holdings and is practically all set to fruit, varying in age from one year to five years. A very few tracts are unimproved. The statutory reservation of right of way for Government canals applies to practically the entire area so that compensation for damage must be based upon improvements. There are complications on account of interference with the Rio Grande Junction Railway and there will be some difficulty in the preparation of satisfactory agreements with The Cameo Coal Company, The Colorado Supply Company and the Irrigation Districts at Palisade.

The recommendations of the Board are as follows:

1. It is recommended that the Secretary of the Interior sign the proper contract with the Water Users Association for the

construction of the project by such methods and at such a rate as the available funds and the controlling circumstances justify.

2. It is recommended that the location of the High Line Canal as shown upon the maps accompanying this report be accepted from the upper end of Tunnel No. 3 (Sta. —) to the present terminus (Sta. —).

3. It is recommended that the Project Engineer be instructed to proceed with the work of construction as soon as the funds for the year 1909 are available. On account of the limited appropriation, it is recommended that work be carried on by force account and by contract under the cooperative plan. It is suggested that the work by force account be confined to Tunnel No. 3, and that co-operative work be carried on by customary methods upon those portions of the canal convenient to the residence sections of those water users who are willing to undertake it.

Inasmuch as the controlling conditions will require the canal to occupy approximately the location designated, the grades as fixed may be assumed as the proper ones, subject to such minor modifications as future detail studies may dictate.

4. It is recommended that the local officers be instructed to conduct negotiations continuously upon the adjustments indicated below until the agreements required are secured. We advise that construction operations be held in abeyance as far as can be done without serious delay to the work until the negotiations reach a satisfactory stage.

(a) In the matter of right of way across orchard lands in the Palisade District, the Water Users have been advised that they must reach an amicable agreement with the landowners damaged and submit a recommendation to the Reclamation Service as to the proper settlement. The local officers will keep in close touch with these committees and in case the negotiations do not reach a satisfactory conclusion by March 1, 1909, it is recommended that the Reclamation Service institute the proper legal steps for condemnation.

(b) In the matter of the transfer of the water rights of the Irrigation Districts at Palisade, the two municipal corporations involved have, through their Boards of Directors signified in a general way their acceptance of the terms offered by the Reclamation Service officials and will proceed to hold elections to ratify contracts as soon as the contracts can be prepared. This is as far as these matters can be carried at the present time and the situation is in a satisfactory condition.

(c) In the matter of interference with the railroad, the situation is somewhat indefinite on account of the uncertainty as to the plans for the upper three miles of the High Line Canal. The general managers of the railroads concerned have signified their willingness to recommend to their executive officials the acceptance of the plan presented herewith upon presentation of the proper contracts. Any future change of plan will lessen the interference, consequently, the railroad companies are not likely to offer serious objections.

(d) Certain interference with companies who own coal lands along the line of the canal are cared for by the reservation of right of way for government canals in the patents.

(e) The Orchard Mesa District is not proceeding in such manner as to indicate plainly how they intend to handle the situation at their headworks. As their requirements are practically identical with those of the Reclamation Service, it is recommended that plans for the upper three miles of the High Line be withheld from public knowledge for two years or more, or until it becomes necessary to begin the construction of that portion of the canal.

5. It is recommended that Smith Brothers who own land on the south side of the Grand River be allowed to purchase water under the terms of the Reclamation Act for their lands, upon release of the power rights now held by them in the Grand River to the Reclamation Service. It is recommended that the price to be paid by them be fixed at the cost of delivering their water at the point of diversion from the High Line Canal and that they be required to furnish the necessary siphons and ditches for the conveyance of the water from the High Line Canal to their lands. It is recommended that public announcement of this policy be withheld.

6. It is recommended that land owners or entrymen whose lands lie above the High Line Canal be permitted to purchase water rights under the terms of the Reclamation Act. They should be charged the regular price for building and for operation and maintenance, in addition to which they should pay the cost of installing pumps, force mains and other structures appurtenant to pumping plants. They should also pay for all power used and for the operation and maintenance of the pumping plants.

7. A peculiar condition exists upon the lands of this project. Large areas settle from a few inches to two feet after irrigation. It is recommended that structures built upon these unstable lands be constructed of the cheapest possible material until such time as the foundations settle to a stable condition. All structures built upon stable foundations should be permanent in character.

8. The type of diversion dam and the final location of the first three miles of the canal should not be settled until the time approaches for their construction. It is recommended that information of a definite character concerning these structures be withheld from the public.

9. It is recommended that drainage problems be left for settlement by communities which are threatened by seepage. At the present time the problem cannot be discussed as it has not developed sufficiently to permit intelligent analysis.

10. It is recommended that the laterals be constructed to each eighty acre tract upon private lands and to each farm unit upon public lands of forty acres or more as laid out upon the farm unit plats for the project. It is recommended that proper devices be installed for the measurement of water to each user.

11. The Board has examined the alternate locations submitted

by the Project Engineer and believes the location from the head of Tunnel No. 3 westward as shown upon maps submitted is the most feasible line. It is requested that the following studies be prepared.

(a) A series of plans for a diversion dam showing the adaptability of types of movable dams heretofore used, also any modifications or improvements of existing types which may be practicable. It is believed that the conditions will require a practically clear channel at extreme flood with provision for raising low water level to the canal surface level and for the diversion of practically the entire stream flow at low water. The clear waterway between piers should not be less than fifty feet.

(b) A number of studies should be prepared showing all possible alternates for the first three miles of the canal. Special reference is had to the following alternates.

I. Diversion at Beaver Tail Tunnel Canal all on right hand bank.

II. Diversion at Beaver Tail Tunnel on left hand bank, crossing at Cameo.

III. Diversion at Beaver Tail Tunnel on left hand bank, crossing at Plateau Creek.

IV. Soundings for bed rock from Beaver Tail Tunnel to Plateau Creek.

12. From estimates now available, it is believed that the cost will not be less than \$50.00 nor more than \$75.00 per acre for the land which can be supplied by gravity. The lands are amply able to pay such charges.

13. It is recommended that farm unit plats be prepared at an early date in order that present entrymen may conform thereto and that all public lands be withdrawn from all forms of entry until the water is ready for delivery.

In compliance with the request of the Chief Engineer addressed by letter of December 2nd to the members of the Board especial study has been given the possibility of raising the canal to an elevation which will avoid serious damage to the orchards in the Palisade District.

It appears that a raise of 35 feet will be necessary to avoid damage. This increased elevation will bring about 2,000 acres under cultivation in addition to that covered by the present canal. To gain the additional elevation by gravity canal will require the extension of the proposed line up the Grand River for a distance of three and a half to four miles at an expense of about one million dollars. Such a change not only adds three and a half to four miles of heavy work, but it also raises the entire lower end of the canyon line above supporting flats along the river and throws it upon very steep side hill and talus slopes. The change would probably necessitate the construction of a large portion of the line in tunnel.

As a possible alternate a pumping plant located at Palisade was considered. On account of the proximity of large coal areas,

it was assumed that steam pumping machinery would be cheaper than any other method.

\* \* \* \* \*

For 60,000 acres this makes a credit of \$28.40 per acre.

Acreage cost of pumping plant.....	\$115.00
Acreage credit for pumping plant.....	28.40
Net capitalized cost.....	<u>86.60</u>

This shows a balance of \$11.60 per acre in favor of the gravity plan as recommended which proposes adequate compensation for damages to fruit land.

Respectfully submitted,

(Signed) W. H. SANDERS,  
*Consulting Engineer.*  
 J. H. QUINTON,  
*Consulting Engineer.*  
 WM. GERIG,  
*Consulting Engineer.*  
 I. W. MCCONNELL,  
*Supervising Engineer.*  
 E. E. SANDS,  
*Project Engineer.*

SEPTEMBER 21, 1912.

The SECRETARY OF THE INTERIOR.

SIR: Herewith is copy of a letter from the Grand Valley Water Users' Association by D. W. Aupperle, Secretary, under date of September 20, submitting documents in regard to the amendment of the Articles of Incorporation providing for equitable payments instead of equal payments in the matter of construction cost, maintenance and operation expenses. These papers have been duly filed as required by the State law for the amendment of Articles of Incorporation.

The meeting of the Association was held on September 14, and adjourned after the completion of business at 1:30. At about 4:30 on the afternoon of September 14, the project engineer at Grand Junction received telegraphic information from this office regarding Departmental letter of September 12, giving instructions for the amendment of the Articles of Incorporation in a number of important particulars. The Secretary's letter of September 12

to the Association was received by the Association on September 16.

At a special meeting of the Board of Directors of the Association, called on September 16, a resolution was adopted, of which copy is enclosed, reciting the fact that the special meeting of the stockholders to pass upon the amendment of the Articles of Incorporation had closed before the Association had any knowledge that additional requirements had been made by the Department. The resolution asks that the further amending of the Articles of Incorporation be waived at this time, and resolved also that the matter of making the amendments desired by the Department shall be submitted to the shareholders at the annual meeting of the Association in January, 1913.

The Association desires that in the meanwhile the Department execute the proposed contract with the Association now pending in the Department, and concerning which the Department in a letter of August 10 addressed to Mr. Aupperle stated, "The contract appears in itself to be suitable, and it is the intention of the Department to execute this as soon as your association has made the changes which a careful examination now being made by the Department may appear to require."

As stated in the Association's letter of September 20 in the absence of any further instructions from the Department since August 10, the Association assumed that no other changes were required in its Articles of Incorporation than the one referred to in Departmental letter of August 10, to the effect that the Articles should provide for equitable payments instead of equal payments.

It is the belief of this office that there is no doubt of the adoption of the desired amendments at the meeting of the Association next January, and that under the circumstances, the Association having acted according to the instructions of the Department available at the time, the making of these amendments at the present time may be waived.

The interests of the United States it is believed will not be jeopardized in the slightest degree, as the Association has everything to lose by failing to carry out the Departmental instructions, and as a matter of fact the present shareholders of the Association will not be materially affected by the proposed amendments.

#### RECOMMENDATIONS

1. That the pending contract with the Association be executed by the Secretary, and that this office be authorized to notify the Association that the adoption of these amendments at this time will be waived, and that it is expected that they will be submitted to the shareholders at the annual meeting January 14, 1913.

2. That this office be authorized to begin construction according to the plan outlined in office letter of February 27, 1912, as all the necessary preliminaries will have been complied with when the Department approves the waiver of present further action in regard to the amendment of the Articles of Incorporation. The

approval of this recommendation will authorize work by Government forces upon one of the smaller tunnels where satisfactory showing of title has been made such work to be carried on in accordance with plans developed by a Board of Engineers to be convened at an early date.

Respectfully,

(Signed) A. P. DAVIS,  
*Acting Director.*

OFFICE OF THE SECRETARY,  
*Washington, September 23, 1912.*

The DIRECTOR OF THE RECLAMATION SERVICE.

SIR: I have your letter of September 21, 1912, recommending the approval of pending contract with the Grand Valley Water Users Association, relating to the construction of the Grand Valley Reclamation Project, Colorado, and the authorization of your office to begin construction of the work according to the plan outlined in letter of February 27, 1912. The amendments to articles of incorporation and by-laws required to be made by letter of the Department addressed to the Grand Valley Water Users Association September 12, 1912, have not been made, as the letter was not received by the association until after its meeting of September 14 had adjourned. The directors of the association have stated in writing that they will submit the proposed amendment to the association at its next regular annual meeting beginning on the second Tuesday in January, 1913, and the secretary of the association personally assures me that the influence of the entire board of directors will be exercised toward securing the adoption of the required amendments.

I have therefore this day approved the contract, upon the express condition that the United States shall not be bound thereby unless the required amendments are made at the January meeting or prior thereto. In the meantime you are authorized to begin construction, according to the plan outlined in letter of February 27, 1912, upon one of the smaller tunnels, where satisfactory showing of title has been made.

Very respectfully,

(Signed) SAMUEL ADAMS,  
*Acting Secretary.*



# HONDO PROJECT <sup>1</sup>

UNITED STATES GEOLOGICAL SURVEY,  
HYDROGRAPHIC BRANCH,  
*Washington, November 2, 1903.*

Honorable CHAS. D. WALCOTT,  
*Director.*

SIR: Preliminary examinations in New Mexico have advanced to the point where it is now possible to recommend construction of a definite project and at the same time continue work on others.

Reports have been received from Mr. Arthur P. Davis, Supervising Engineer, and from Messrs. Geo. Y. Wisner and J. H. Quinton, Consulting Engineers, recommending that of the various projects examined, construction be begun on that known as the Hondo Reservoir, provided that rights of way can be secured and necessary arrangements made with the landowners possessing needed lands and rights.

Briefly stated, the lands under the Hondo project which can be irrigated to advantage, have an extent of from 12,000 to 15,000 acres. The estimated cost of construction and bringing the water to the arid land is in round numbers \$240,000, or \$20 per acre for a minimum acreage of 12,000. It is believed, however, that more than 12,000 acres can be served.

The land which can be irrigated most easily from the reservoir is mainly in the hands of private parties. These are of two classes, those who have settled or made claims prior to the reservation of the land and second, those who have made homestead entries under the terms of the Law of June 17, 1902. Probably all of the land has been taken up in one form or another so that there is no question as to colonization.

The land is all first class, level and free from alkali and will be worth ultimately at least \$100 per acre when planted to alfalfa or corn, and if used for fruit may have a far higher value.

The works contemplated consist of the enlarging of a natural reservoir and the providing of an inlet and outlet canal, involving no engineering difficulties.

<sup>1</sup> The *Hondo Project* was found feasible under the original Reclamation Act prior to its amendments. The project was unsuccessful and in 1924 the Committee of Special Advisers (Fact Finders Committee) recommended that the project be appraised and sold.

Further facts are contained in copies of the accompanying documents as follows:

Extract from letter of J. H. Quinton, dated October 1, 1903.

Extract from letter of Geo. Y. Wisner, Consulting Engineer, dated October 6, 1903.

Extract from joint report by Messrs. Davis, Wisner, and Quinton dated October 22, 1903.

In view of the statements from these engineers who have been convened to act as a board to pass upon the matter, I respectfully make the following recommendations.

### RECOMMENDATIONS

It is recommended that the approval of the Secretary of the Interior be secured for taking up this project and pushing it forward to early completion, provided satisfactory arrangements can be made regarding titles.

Second, that the Chief Engineer of the Reclamation Service be authorized to investigate the land titles, secure options, and make definite arrangements for purchase of necessary lands and rights, such arrangements to be subject to final approval by the Secretary.

Third, that the Chief Engineer be authorized to organize or cause to be organized into an association, the people owning lands which may be served by these works, as required by Section 6 of the Act of June 17, 1902; said form of organization following in general lines the Articles of Incorporation of the Salt River Valley, Arizona, Water-Users' Association.

Fourth, that the Chief Engineer be authorized to have prepared detailed plans and specifications for the constructions of the works, advertisements for bids to be inserted in the usual form under departmental supervision, the bids to be received in accordance with law; and recommendation made to the Secretary for acceptance.

Fifth, that the Chief Engineer be authorized to perform other necessary acts and execute minor works by days labor in the customary manner, such as drilling for foundations, uncovering the same, erecting temporary structures and minor works not covered by the usual contracts.

Very respectfully,

(Signed) F. H. NEWELL,  
*Chief Engineer.*

NOVEMBER 3, 1903.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: I have the honor to transmit herewith with my approval, the accompanying letter from Mr. F. H. Newell, Chief Engineer, and related documents.

I have not examined this locality personally, but from such knowledge as I possess, I believe that construction here should be taken up and pushed forward promptly.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, November 10, 1903.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Under cover of a letter of the 3rd instant to the Department you submitted with your approval a report, with related papers, from Mr. F. H. Newell, Chief Engineer, relative to the Hondo Project, New Mexico, under the act of June 17, 1902—32 Stat. 388.

Mr. Newell has stated that the lands which can be advantageously irrigated under this project have an extent of from 12,000 to 15,000 acres and that the cost of construction and delivering the water to the arid land is estimated in round numbers at \$240,000. He has also recommended as follows:

First: That Departmental approval be secured for taking up the project and carrying it forward to early completion, if satisfactory arrangements can be made regarding titles.

Second: That the Chief Engineer of the Reclamation Service be authorized to investigate the land titles, secure options, and make definite arrangements for purchase of necessary lands and rights, such arrangements to be subject to final approval by the Secretary.

Third: That the Chief Engineer be authorized to organize or cause to be organized into an association, the people owning lands which may be served by these works, as required by Section 6 of the act of June 17, 1902; said form of organization following in general lines the articles of incorporation of the Salt River Valley, Arizona, Water-Users' Association.

Fourth: That the Chief Engineer be authorized to have prepared detailed plans and specifications for the construction of the works, advertisement for bids to be inserted in the usual form under Departmental supervision; the bids to be received in accordance with law; and recommendation made to the Secretary for acceptance.

Fifth: That the Chief Engineer be authorized to perform other necessary acts and execute minor works by days labor in the customary manner, such as drilling for foundations, uncovering the same, erecting temporary structures and minor works not covered by the usual contracts.

I have considered the recommendations and in view of your approval thereof and of your expressed opinion that construction under this project should be taken up and pushed forward promptly, the recommendations are hereby approved and authority to take such further action as is necessary to carry them into effect is hereby granted.

I have endorsed my approval on the report of Mr. Newell which, with the accompanying papers, is enclosed. A copy of the report has been retained for the files of the Department.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# HUMBOLDT PROJECT

OFFICE OF THE SECRETARY,  
*Washington, November 1, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*, 295 U. S. 174) indicated that Section 4 of the Act of June 25, 1910 (36 Stat., 835) is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Humboldt project, Nevada, is made to you under said statute of 1910 and under subsection B of Section 4 of the Act of December 5, 1924 (43 Stat., 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 24, 1933, the Federal Emergency Administrator of Public Works approved an allotment of \$2,000,000 for the construction of the Humboldt project, Nevada. This is a part of the appropriation of \$3,300,000 made in the Fourth Deficiency Act, Fiscal Year 1933, approved June 16, 1933, 48 Stat., 275, to carry out the purposes of the National Industrial Recovery Act of June 16, 1933, 48 Stat., 195. The allocation of \$2,000,000 became available September 6, 1933, and to date about

\$600,000 has been spent on the project and \$300,000 addition obligated.

The supplemental water to be developed by the project will be used for irrigation on some 30,000 acres of patented land near Lovelock, Nevada, embraced in the Pershing County Water Conservation District of Nevada, which District has entered into a contract with the United States dated October 1, 1934, to repay the cost of the project over a term of 40 years without interest.

The furnishing of an additional water supply for the project will be accomplished by the construction of the Rye Patch Reservoir on the Humboldt River near Rye Patch, Nevada, with a storage capacity of 179,000 acre feet of water and the acquisition and transfer of old up-stream water rights from the lands upon which used down the Humboldt River for storage in said Rye Patch Reservoir and use on the lands within the District.

The construction of said reservoir and the purchase of water rights as contemplated by the repayment contract will provide additional water urgently needed for the irrigation of the lands in the Pershing County Water Conservation District of Nevada.

Studies and investigations made by the Bureau of Reclamation indicate that the water supply is adequate for the purpose intended, that the construction of the dam and the acquisition and transfer of the water rights are feasible from an engineering standpoint and that the dam can be constructed and the water rights acquired within the allotment.

I find that the project is feasible, that the land watered thereby is adaptable for actual settlement and farm homes, that the lands are badly in need of an additional water supply and that the project will probably return the cost thereof to the United States.

I recommend that the project, consisting of the Rye Patch Reservoir and the acquisition of water rights be approved and any steps or action heretofore taken toward the construction of said dam or the purchase of water rights be ratified, and that authority be issued to this Department to proceed with the work and to make contracts and take any necessary action to construct and complete the project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# HUNGRY HORSE PROJECT

## HUNGRY HORSE DAM

An act to provide for the partial construction of the Hungry Horse Dam on the South Fork of the Flathead River in the State of Montana, and for other purposes. (Act June 5, 1944, 58 Stat. 270, Public Law 329, 78th Cong., 2d sess.)

\* \* \* That for the purpose of irrigation and reclamation of arid lands, for controlling floods, improving navigation, regulating the flow of the South Fork of the Flathead River, for the generation of electric energy, and for other beneficial uses primarily in the State of Montana but also in downstream areas, the Secretary of the Interior is authorized and directed to proceed as soon as practicable with the construction, operation, and maintenance of the proposed Hungry Horse Dam (including facilities for generating electric energy) on the South Fork of the Flathead River, Flathead County, Montana, to such a height as may be necessary to impound not less than one million acre-feet of water.

SEC. 2. The Secretary of the Interior is authorized to complete, as soon as the necessary additional material is available, the construction of the Hungry Horse Dam so as to provide a storage reservoir of the maximum usable and feasible capacity.

SEC. 3. The Secretary of the Interior is authorized to construct, operate, and maintain under the provisions of the Federal reclamation laws (act of June 17, 1902, 32 Stat. 388 and acts amendatory thereof or supplementary thereto), such additional works as he may deem necessary for irrigation purposes. Such irrigation works may be undertaken only after a report and findings thereon have been made by the Secretary of the Interior as provided in such Federal reclamation laws; and, within the limits of the water users' repayment ability, such report may be predicated on allocation to irrigation of an appropriate portion of the cost of constructing said dam and reservoir. Said dam and reservoir and said irrigation works may be utilized for irrigation purposes only pursuant to the provisions of said Federal reclamation laws.

SEC. 4. There are authorized to be appropriated such sums as may be necessary to carry out the purposes of this act.

# HUNTLEY PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Denver, Col., February 26, 1905.*

Mr. F. H. NEWELL,  
*Chief Engineer, U. S. R. S., Washington, D. C.*

DEAR SIR: We, the undersigned, have examined and considered the advertisement, proposal, specifications, plans Nos. 1-2-3-4 and profile hereto attached, for the Huntley Project, Montana, and recommend the project be promptly advertised and put under construction, in accordance therewith.

Very truly yours,

(Signed) WILLIAM E. SWIFT,  
*Dist. Engr.*  
H. N. SAVAGE,  
*Supv. Engr.*  
A. J. WILEY,  
*Cons. Engr.*  
J. H. QUINTON,  
*Cons. Engr.*

APRIL 14, 1905.

The Honorable the SECRETARY OF THE INTERIOR.

SIR: I have the honor to acknowledge the receipt of Departmental letter of the 13th inst., transmitting the reports of the Commissioner of the General Land Office and of Indian Affairs upon the proposed Huntley Project, in the ceded Crow Indian Reservation.



From the report of the Commissioner of the General Land Office it appears that contracts have been let for the necessary public land surveys and that they are to be completed by the end of the present year. The Commissioner of Indian Affairs reports that the allotments on the ceded part of the Crow reservation under the proposed project are perhaps completed in the field at the present time. If not, they can be made at a very early date.

In regard to the disposition of the lands allotted to Indians who have since died, and which under the law can be disposed of by their heirs, the Commissioner is of the opinion that the Secretary of the Interior may require a condition in the transfer from the Indian heir to the purchaser that the latter shall make application for a water right under the provisions of the reclamation act, although he questions the efficacy of such a condition.

It is believed that such a condition introduced in the terms of sale and deed issued would accomplish the results desired. If, however, such condition is not binding upon the purchaser, it is believed that there will be but few cases in which objection would be made, because if the land is sold in tracts not exceeding 160 acres to any one person, it can not be utilized to much advantage without water. The main object to be accomplished in making these transfers is to prevent the acquisition of these lands in large blocks.

It appears, therefore, from the reports of the Land Office and the Indian Office that the questions raised regarding the advisability of beginning the project at once have been satisfactorily answered.

It is therefore recommended that appropriate instructions be given to complete the Indian allotments at as early a date as possible, and that prompt report be made thereon by the end of the present year, and also that the Indian Office be instructed to prepare such conditions of sale of the inherited lands as shall incorporate the requirements of the reclamation act.

This office would be pleased to cooperate in the preparation of these conditions, in order that the policy of the Reclamation Service may be carried out as fully as the circumstances will permit.

The project as now outlined contemplates the irrigation of about 35,000 acres of land at an approximate total cost of \$900,000. The project has been approved by the Board of Engineers, and I recommend that the sum of \$900,000 be set apart for the further steps necessary for the completion thereof. The plans and specifications have been reviewed by the Board of Engineers, who have approved them and recommended the immediate construction of the main canal covered by the specifications under consideration.

It is recommended that the specifications, which are herewith returned, be approved by the Department.

Very respectfully,

(Signed) CHAS. D. WALCOTT,

*Director.*

DEPARTMENT OF THE INTERIOR,  
*Washington, April 18, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: I have before me your letter of the 14th instant in which you have reported that the proposed Huntley Project, Montana, as now outlined, contemplates the irrigation of about 35,000 acres of land at an approximate total cost of \$900,000, that the project has been approved by the Board of Engineers and you have recommended that the sum mentioned be set apart toward the completion thereof. You have also enclosed a proposed form of advertisement, proposal and specifications for the construction of 30 miles of main canal of this project on ceded Crow Indian lands, the approval of which you have recommended.

In view of your recommendations I hereby authorize the construction of the Huntley Project and I hereby set aside from the fund provided by the act of June 17, 1902—32 Stat. 388—the sum of \$900,000 for that project. I also hereby approve the form you have submitted except that, in view of the difference of opinion that has arisen between the Comptroller of the Treasury Department and this Department, with respect to concessions of rates from railroad companies, and of the fact that I have asked the Attorney General for an opinion in the matter, I do not think it advisable to retain in the general specifications Paragraph 11, relating to concessions of rates or to ask bidders to make allowance for such concessions. I therefore direct that you eliminate paragraph 11 from the general specifications.

In accordance with your further recommendations I have in a letter of today directed the Commissioner of the General Land Office to cause the survey of this land to be completed and reported on to the Department without delay, and in another letter I have directed the Commissioner of Indian Affairs to cause the allotments to be made and reported on before the expiration of the present year, and to confer with you on the subject of conditions of sale of inherited lands.

The enclosure in your letter is returned herewith.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# HYRUM PROJECT <sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, November 1, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*, 295 U. S. 174) indicated that Section 4 of the Act of June 25, 1910, 36 Stat. 835, is applicable to irrigation project constructed under the National Industrial Recovery Act, and this report upon the Hyrum project, Utah (also called the Cache Valley division of the Salt Lake Basin project), is made to you under said statute of 1910 and under sub-section B of Section 4 of the Act of December 5, 1924 (43 Stat., 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat., 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 19, 1933, I approved an allotment of \$930,000 for the construction of the Hyrum project, all of which is still available or has been expended toward the construction of the project.

The water to be developed by the project will be used for the

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<sup>1</sup> The *Hyrum Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

irrigation of privately owned lands already under cultivation in the vicinity of Hyrum, Wellsville, and Mendon, Utah. The major portion of the lands under the project now has a partial water supply from existing irrigation system while the remaining lands are used in the growing of dry farm crops but the lands will be more productive and profitable crops more certain when water is made available from the project works. The dry-farm lands are embraced within the Wellsville-Mendon Conservation District which was organized expressly to participate in the project.

The lands of the project are mainly under canal systems of two existing companies which, with the Wellsville-Mendon Conservation District, have formed the South Cache Water Users' Association, which has entered into a contract with the United States dated October 9, 1933, to repay the cost of the project.

The furnishing of water for the project lands will be accomplished by the construction of the Hyrum Reservoir on the Little Bear River with a total storage capacity of 18,000 acre-feet of water and a live storage capacity of 14,000 acre-feet of water, the construction of the Hyrum-Mendon Canal, with a length of 14 miles, which diverts from the Little Bear River immediately below the reservoir, the construction of the Wellsville Canal, including a pumping plant in connection therewith, which diverts from the Little Bear River also just below the reservoir, with a length of 5½ miles, and the construction of the Hyrum Feeder Canal, approximately one mile in length, which diverts from the outlet works of the Hyrum Reservoir.

Studies and investigations made by the Bureau of Reclamation indicate that the water supply is adequate for the purpose intended, that the construction of the reservoir and canals is feasible from an engineering standpoint, and that the project can be completed within the allotment of \$930,000 which the Association has agreed to repay.

I find that the project is feasible, that the lands watered thereby are adaptable for actual settlement and farm homes, that the lands are in need of a water supply, and that the project will probably return the cost thereof to the United States.

I recommend that the project, consisting of the Hyrum reservoir and three canals, and which is now in an advanced stage of completion, be approved, that any steps or action heretofore taken towards the construction of the same be ratified, and that authority be given to this Department to proceed with the work and to make and carry out contracts and take any necessary action to construct and complete the project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# INTAKE PROJECT

OFFICE OF THE SECRETARY,  
*Washington, October 11, 1943.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Intake Pumping project involving the irrigation of 840 acres of land in Dawson County, Montana, and pursuant to the authority of the Act of August 11, 1939 (53 Stat. 1418), as amended (herein called the Act), I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

## PROJECT PURPOSE

The primary purpose of the proposed project would be to develop a water supply for 580 acres of new land and to consolidate the number of individual pumping units now pumping water for 260 acres. The area lies along the north bank of the Yellowstone River northeast of the town of Glendive, and its immediate development would provide a means of increasing the production of agricultural products now vitally needed. After the war, it is believed that the project would stabilize the incomes of families living in the area and would contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing new homes and opportunities for a few additional families.

## THE PLAN

Water would be raised to the project area by pumping from the main canal of the existing adjacent Lower Yellowstone project which was built under the Federal Reclamation Law. Structures contemplated for the development would consist of a pumping plant, one siphon, and the usual turnouts, wasteways, small bridges, and similar features. Changes in these general plans may

be found necessary, but it is expected that any changes will be of a minor nature and will neither alter the general objectives of the project nor result in material departures from the present findings, predicated on the present plans for the project.

### PARTICIPATION OF FEDERAL AGENCIES

The Bureau of Reclamation would construct the pumping plant, canal system, and other necessary and appurtenant structures, and, subject to change, also would operate the system after it is built. The Bureau would negotiate contracts with the water users for the repayment of the reimbursable construction charges.

The War Food Administrator, acting in the stead of the Secretary of Agriculture, has transmitted a letter which is enclosed, indicating his approval of the project and the extent of the proposed participation by the Department of Agriculture. From this letter it will be noted that the War Food Administrator concurs in my belief that the construction would be justifiable as an aid in the production of needed agricultural products.

Services, labor, materials, supplies, equipment, and similar items which may become available through the Selective Service System, Prisoner-of-War Camps, or other Federal Agencies may be utilized under the terms and conditions fixed by such agencies if, in my opinion, such use would effectively expedite construction of the project.

### PARTICIPATION OF NON-FEDERAL AGENCIES

Local interests requesting the development of the project indicate that they would form or become part of a suitable organization in order to contract with the Government for the repayment of that part of the construction cost which is determined to be reimbursable. The water users benefited by the work of the Department of Agriculture would be required to repay the reimbursable money expended in that work in accordance with the amended act. Aid which may be offered by the local interests probably would be accepted.

### ESTIMATED COST AND FINANCING PROCEDURE

The total cost of the project to be undertaken by this Department, excluding a proportionate part of the cost of works heretofore built, is \$62,000. In connection with the project, the Department of Agriculture expects to undertake activities pursuant to Section 5 of the Act which are estimated to cost \$73,000. The activities of both Departments would be financed with monies heretofore appropriated for Water Conservation and Utilization Projects. The total expenditure is estimated to be \$135,000.

It has been determined that the water users can repay, under the terms of the Act, \$46,900 of the investment in the works heretofore built or to be built by the Bureau of Reclamation. Of

the estimated cost of \$62,000, it is expected that not to exceed \$9,500 will be charged as a part of the costs of the Fort Peck Power project, this amount representing the investment in power lines. The amount charged to that project will reduce the net construction cost of the Intake project.

There is ample capacity in the existing works of the Lower Yellowstone project to deliver the water which would be used for the Intake project. The cost of this capacity, estimated at \$6,700, is not charged to the water users of the existing Lower Yellowstone project. The repayment ability of the water users has been estimated at \$46,900. Should the net cost of the new works be less than \$46,900, it is expected that the difference between the cost of the new works and \$46,900 will be credited to Reclamation Fund when repaid.

Net construction costs in excess of \$46,900, as authorized by the Act, would be excluded from the project construction cost and would be treated as non-reimbursable.

It is estimated that the water users can repay \$53,000 of the costs of the work performed by the Department of Agriculture. All costs in excess of this amount would, as authorized by the Act, be treated as non-reimbursable.

In addition to the above estimated costs, an over-allotment should be provided for the Department of the Interior in the amount of \$23,000. This sum represents the estimated transfer value of equipment, and would be returned to the project upon completion of construction.

Sufficient funds for these purposes have been appropriated and are now available for allotment.

### SIZE OF FARM UNITS

Since the exact size may vary over the project area in accordance with the varying conditions of the project lands, limitations on the various holdings will be established after more complete and final surveys have been made. It now appears that ultimately the proper size holding would be about 80 acres of irrigable land.

### FINDINGS, CERTIFICATIONS, RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

1. The proposed project has engineering feasibility.
2. The total estimated cost is \$62,000, excluding a proportionate part of the cost of works heretofore built.
3. The estimated cost which properly can be allocated to irrigation is \$62,000, less such amount not to exceed \$9,500 as is finally charged to the Fort Peck Power project.
4. The water users probably can repay \$46,900 in accordance with the requirements of Section 4 of the Act of October 14, 1940, this amount including not to exceed \$6,700 of the cost of existing works built under the Federal Reclamation Law and not in connection with this project.

5. No part of the estimated cost properly can be allocated to municipal or miscellaneous water supply or power.
6. No part of the estimated cost properly can be allocated to the irrigation of Indian trust and tribal lands.
7. No part of the estimated cost properly can be allocated to flood control.
8. The proposed construction is justifiable as an aid in the production of needed agricultural products.

If you approve of this project, it is planned to proceed immediately with matters relating to land acquisition, water rights, and repayment contracts so that the requirements of the statutes may be met as promptly as possible. The project has heretofore been submitted to the War Production Board for clearance for commencement of construction and procurement of materials needed for construction.

On the basis of the foregoing report and findings, I recommend that you approve this project for construction.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved January 20, 1944.

(Signed) FRANKLIN D. ROOSEVELT.



# KENDRICK PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, August 27, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: Section 4 of the act of June 25, 1910 (36 Stat. 835), provides in effect that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat. 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features requiring investigation and report under this subsection will be discussed in connection with the Casper-Alcova project in Wyoming in the order in which they are presented as follows:

## WATER SUPPLY

*Source.*—The source of the water supply for the project is the North Platte river and its tributaries. Pursuant to the laws of Wyoming, permit No. 18488, with a priority date of July 27, 1934, for the diversion of the free flow of the river and permit No. 4552 Res., with a priority of December 1, 1931, for the storage in the Seminole reservoir of all unappropriated and flood waters of the river system, have been granted by the State Engineer of Wyoming.

<sup>1</sup> The *Kendrick Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

*Adequacy.*—Water supply studies indicate that the mean annual yield of the North Platte river system is sufficient, if properly conserved and legally utilized, to supply extant rights and provide an ample supply for the project area of 66,000 acres.

However, in the interest of conservatism it is planned to construct the project in two units of 35,000 acres and 31,000 acres respectively. The construction of the second unit of 31,000 acres is to be held in abeyance until the results of conservation and legal utilization of water are ascertained.

### ENGINEERING FEATURES

*Storage.*—A storage dam will be required on the North Platte river. It will be located in the Seminoe canyon between the Seminoe and Freezout mountains and will be 37 miles northeast of Parco, Wyoming, and 73 miles southwest of Casper, Wyoming. The Seminoe dam will be of the concrete arch type, about 540 feet in length on the crest and about 260 feet in height from the lowest point of foundation to the top of the roadway and the reservoir created by its construction will have a capacity of about 1,040,000 acre-feet of storage water.

*Diversion.*—A diversion dam will be required on the North Platte river. It will be located in the Alcova canyon near Alcova, Wyoming, and will be 32 miles southwest of Casper, Wyoming. The Alcova diversion dam will be of earth, gravel, and rock fill embankment and will be approximately 900 feet long and about 180 feet in height above the river bed; have an open channel spillway in the north abutment of the dam; and a diversion tunnel and outlet works on the south side of the river. It will raise the low water surface of the river 170 feet, to permit diversion into the Casper canal.

*Main canal.*—The Casper canal, with an initial capacity of 1,200 second feet, extends, with a gradually reduced capacity, from the Alcova reservoir northeasterly for a distance of 60 miles for Unit No. 1 of the project and for a total distance of 100 miles for both project units and terminates about 6 miles north of Casper. The first 60 miles of this canal requires 6 concrete lined tunnels, with a combined length of about 17,700 linear feet, 15 reinforced concrete siphons, 62 culverts or cross drainage structures, 4 combination checks, culverts and wasteways, 21 bridges, 8 checks, and 34 headgates. On the remainder of the canal no tunnels will be required.

*Lateral system.*—Tapping the main canal at appropriate intervals lateral ditches with smaller distributaries leading from them will convey the water to the boundaries of each farm unit of the project. The structures of the lateral system will be constructed of reinforced concrete.

*Drainage.*—Comparatively good natural drainage with frequent water courses for removing waste water exists on the project, but a number of main outlet open drains with appropriate structures will be required to provide outlets for small drainage ditches

which may become necessary from time to time during the operation of the project.

*Power system.*—A hydroelectric power plant will be constructed at the Seminole dam consisting of three 14,000 horsepower units for the generation of a uniform output of 18,000 KW or over 150 million KW Hours per annum. It is proposed to construct 300 miles of high tension transmission line together with the necessary substations to transmit the power generated at the Seminole power plant to purchasers of such power.

### COST OF CONSTRUCTION, BY FEATURES

Examination and surveys.....	\$60,000
Seminole dam .....	3,750,000
Seminole power plant.....	2,280,000
Transmission lines and substations.....	2,470,000
Alcova diversion dam.....	3,339,000
Main canal (for first unit).....	5,220,000
Lateral system (for first unit).....	1,400,000
Drainage system (for first unit) ..	1,050,000
Farm units (for first unit).....	9,000
Permanent improvements and lands.....	15,000
Telephone system .....	56,000
Operation and maintenance during construction (for first unit) .	250,000
Settlement and development.....	105,000
Subtotal—First Unit .....	20,004,400
Main canal (for second unit).....	1,502,000
Lateral system (for second unit).....	1,085,000
Drainage system (for second unit).....	930,000
Farm units (for second unit).....	6,000
Operation and maintenance during construction (for second unit).....	80,000
Settlement and development (for second unit).....	93,000
Subtotal—Second Unit .....	3,696,000
Total cost, entire project.....	23,700,000

### LAND PRICES AND PROBABLE COST OF DEVELOPMENT

An appraisal of the project lands is being made by a board of three members, all of whom were appointed by the Department. The tentative report of the board establishes values ranging from \$5 to \$15 per acre, or an average value of \$8.50 per acre of unimproved irrigable land. Values ranging from \$1 to \$2.50 per acre have been fixed tentatively for non-irrigable land. The report of the board of appraisers will not be final until approved by the Department. Speculation in project lands is prevented by the provision in the repayment contract with the Casper-Alcova Irrigation District requiring all landowners to execute recordable contracts agreeing to sales of their lands at prices not exceeding those fixed in the approved report of the board of appraisers; the execution of such contracts being a condition precedent to eligibility for water service from the project works.

The control of speculation in the project lands will safeguard the settlers of the project against the payment of excessive prices

for farms on the project, and, with the exercise of reasonable prudence by the individual in his development program, the cost of development of a project farm will be within the economic limits conducive to successful farm operations.

About 8 percent of the project lands are privately owned, 6 percent is state land,  $7\frac{1}{2}$  percent are entered public lands, and  $3\frac{1}{2}$  percent are unentered public lands.

#### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The chief economic value of the Casper-Alcova irrigation development grows out of its location. It is in the center of a large and important grazing area where there is an imperative need for winter feed for range livestock; because of this alfalfa and grain will be the principal crops. This irrigated area, therefore, will increase the use and value of a large area of grazing land.

The climate and soils of the project are adapted to the production of all temperate zone crops with yields comparable to those obtained on the adjacent North Platte project. The main crops that can be profitably grown under irrigation are alfalfa, the small grains, Indian corn, red clover, potatoes, sugar beets, and many others of minor importance. Topography and soils are generally favorable for reclamation by irrigation. Of the 200,000 acres commanded by the Casper canal only the very best lands, or 66,000 acres, are included in the lands to be irrigated. A water supply for the irrigation of this area will sustain a highly intensified agriculture and make homes for from 600 to 700 additional families. Casper, with a present population of 18,000, will furnish an accessible market and marketing facilities for all crops raised and the range livestock which will be brought to the project to fatten for market.

The main lines of the Chicago, Burlington & Quincy Railroad and the Chicago & North Western Railroad are at a maximum distance of 10 miles from 75 percent of the irrigated lands. Improved hard surfaced highways serve the project areas.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The next declaration required is that the cost of construction will probably be returned to the Federal Government. This is interpreted to mean that it will be returned within the period provided in the Casper-Alcova Irrigation District repayment contract, which is 40 years from the time the Secretary issues public notice that water is available from the project works.

It is assumed that construction payments on this area, as large as on similar areas in this arid region, can be made. On this basis a yearly average construction payment of \$2 an acre has been fixed. This makes the average total minimum construction charge \$80 an acre, with operation and maintenance to be paid in addition.

The Pathfinder reservoir, constructed 25 years ago and lying immediately downstream from Seminoe, enables Seminoe outflow

to be used in producing power as needed, to an amount equivalent of 18,000 KW continuous power, or 150 million KWH per year. Investigations indicate that there is an existing market for this power in Casper, Cheyenne, Rawlins, Laramie, Douglas, Medicine Bow, and Parco, which are among the principal towns of the State. The region is rich in mineral resources, including iron, platinum, gold, and non-metallic deposits. The iron ore used by the steel plants at Pueblo, Colorado, comes from this region. Even without material development of the resources, it is estimated that the entire power output of the Seminole plant will be used in Wyoming within ten years.

The Seminole power project is believed to be financially sound. Profits from the sale of power will repay not only the Seminole storage and hydroelectric development but will assist in the repayment of the cost of the irrigation project. The conservation of water in the Seminole reservoir will extend the irrigated areas of Wyoming, and the hydroelectric feature, which it makes possible, will aid materially in the development of the rich mineral resources of the State of Wyoming and like areas in adjacent States.

The favorable conditions heretofore recited justify the belief that the project will return its cost. The project is regarded as one well suited to the needs of settlers and appropriate for development as a Federal reclamation project. I, therefore, recommend its approval and the issuance of the necessary authority to this Department to make contracts for its construction, and to proceed with the work.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved August 30, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1938

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1938, and for other purposes. (Act August 9, 1937, 50 Stat. 564, 595-596, Public Law 249, 75th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1938, namely:

\* \* \* \* \*

Construction: For continuation of construction of the following projects in not to exceed the following amounts, respectively,

to be expended from the Reclamation Fund under the same general conditions and in the same manner and for the same objects of expenditure as specified for projects hereinbefore in this act under the caption "Bureau of Reclamation," and to be reimbursable under the Reclamation Law.

\* \* \* \* \*

Casper-Alcova project, Wyoming, \$650,000: *Provided*, That in recognition of the respective rights of both the States of Colorado and Wyoming to the amicable use of the waters of the North Platte River, neither the construction, maintenance, nor operation of said project shall ever interfere with the present vested rights or the fullest use hereafter for all beneficial purposes of the waters of said stream or any of its tributaries within the drainage basin thereof in Jackson County, in the State of Colorado, and the Secretary of the Interior is hereby authorized and directed to reserve the power by contract to enforce such provisions at all times: *Provided further*, That from and after the passage of this act, the Reclamation project heretofore known as the Casper-Alcova project shall be known and designated on the public records as the Kendrick project, and that the change in the name of said project shall in no wise affect the rights of the State of Wyoming or the State of Colorado or any county, municipality, corporation, association, or person, and all records, surveys, maps, and public documents of the United States or of either of said States in which said project is mentioned or referred to under the name of the Casper-Alcova project shall be held to refer to said project under and by the name of the Kendrick project.

BUREAU OF RECLAMATION,  
*Washington, November 10, 1941.*

The SECRETARY OF THE INTERIOR.

SIR: There is transmitted herewith a copy of a report dated October, 1941, prepared by the Chief Engineer, Bureau of Reclamation, on the proposed Kortès power development, Kendrick, Wyoming.

The proposed development comprises a concrete gravity dam 197 feet in height at a site on the North Platte River 2.1 miles below the existing Seminole Dam, a pressure tunnel 750 feet long with a capacity of 2,150 cubic feet per second leading to the power plant which will have an installed capacity of 30,000 kilo-

watts in three units and a transmission line to Loveland, Colorado, with a connection to Seminoe power plant. The estimated construction cost under present high prices is \$8,310,000. The estimated cost of construction under normal conditions is \$7,045,000.

On the basis of present high prices the annual cost of the project will be \$517,000 including amortization of investment in 40 years with interest at 3%. The plant will produce 101,000,000 kilowatt-hours of firm energy and an average of 61,000,000 kilowatt-hours of secondary, annually, which will have a value of \$564,000 or \$47,000 greater than annual costs. The power will be marketed over the interconnected system of the Shoshone, River-ton, Kendrick, North Platte and Colorado-Big Thompson projects. The entire output of the plant should be absorbed soon after it is completed.

On the basis of the foregoing I recommend that you find the Kortes power development feasible and transmit copies of the report to the President and the Congress as provided by Section 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187).

Respectfully,

(Signed) H. W. BASHORE,  
*Acting Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, November 26, 1941.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: In accordance with the provisions of Section 9 (a) of the Reclamation Project Act of 1939, Act of August 4, 1939 (53 Stat. 1187), this report and finding is made on the Kortes power development proposed to be constructed as works supplemental to the Kendrick Project, Wyoming. The report was prepared in the office of the Chief Engineer, Bureau of Reclamation, and is based on studies and investigations conducted by the Bureau of Reclamation. I hereby approve and adopt it.

Based on this report, I find that: the supplemental works are feasible from an engineering standpoint; the estimated cost is \$8,310,000 based on present high prices and \$7,045,000 based on prices under normal conditions; the entire cost properly should be allocated to power and an amount greater than the cost, under

present high prices, will probably be returned to the United States in net power revenues.

Similar letters and copies of the report will be submitted to the President of the Senate and the Speaker of the House of Representatives upon advice from the Director of the Bureau of the Budget that such submission is in accord with your program. This procedure is to conform with the provisions of the Executive Order of June 26, 1940.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*



# KERN RIVER PROJECT<sup>1</sup>

BUREAU OF RECLAMATION,  
*Washington, October 4, 1940.*

CHIEF OF ENGINEERS,  
*War Department, Washington, D. C.*

DEAR SIR: Reference is made to your letter of March 30 and subsequent correspondence, relative to the report of the Corps of Engineers on a flood-control project in the Kern River Valley in California.

The proposed development involves the construction of the Isabella Reservoir to a capacity of 550,000 acre-feet at a total estimated cost of \$6,800,000. According to the report, the development will conserve 87,500 acre-feet of water for additional irrigation use in the Kern River area annually. The value of this additional water is placed at \$153,000 a year. The report also states that the stream regulation resulting from the proposed construction will effect an increase in power output at the existing hydro plants on the Kern River, the annual value of which is estimated at \$32,000.

The report proposes that the local irrigation interests shall be required to contribute one-third of the construction cost of the reservoir less an allowance of \$425,000 for the operation and maintenance of the project, and that they shall operate the reservoir and outlet works in accordance with regulations prepared by the Secretary of War.

The Bureau of Reclamation is constructing the Friant Dam and Reservoir on the San Joaquin River as one of the principal features of the Central Valley project. It also proposes to construct the Friant-Kern Canal for the purpose of supplementing the water supply of the Kern River area with water stored at the Friant Reservoir.

The State water plan for the Central Valley of California, as prepared by the California State engineers, included the construction of the Friant Dam and Reservoir and Friant-Kern

<sup>1</sup> The *Kern River Project* was found feasible and authorized to be constructed by the Corps of Engineers under provisions of the Flood Control Act of 1944. The appropriation Act of June 29, 1948, to the Bureau of Reclamation is only for the purpose of making studies to establish the allocation of the capital cost of the project to its various functions and develop a base upon which a repayment contract can be negotiated.

Canal, as now being undertaken by the Bureau of Reclamation and the construction of the Isabella Reservoir. Their reports also indicate that there are several reservoir sites on the Kern River suitable for storage and power development.

The development of the Isabella Reservoir, with the resulting increase in the amount of water available for irrigation use, and that of the Friant Division of the Central Valley project, now under construction by the Bureau of Reclamation, are very closely related to each other. It is not apparent that this relationship was studied by the district engineer.

The flood hazards in the Kern River Basin and the need of furnishing supplemental water to the service area have been recognized by the Bureau for some time. As the Isabella Reservoir site is probably the cheapest storage on the Kern River the Bureau of Reclamation does not object to its construction as a flood-control measure. In fact, it is believed that the work is highly desirable.

However, the Bureau is of the opinion that actual construction of the Isabella Dam should be preceded by investigations of the relationship between the flood-control project and the Central Valley project. A thorough study should also be made of possible upstream storage and power sites, as storage at these sites may have some effect on the desirable capacity of the Isabella Reservoir. Further studies should also be made of the power potentialities at the Isabella site.

In this connection it may be stated that the Bureau is now engaged in location surveys for the Friant-Kern Canal and is making an investigation of the irrigation requirements in the Kern River Valley. This latter study will correlate all information available in connection with the flood-control project and the Central Valley project, as well as an examination of upstream storage and power potentialities at the Isabella site.

The engineers of the Bureau of Reclamation do not believe that a proper allocation of cost of constructing the Isabella Reservoir can be made until the surveys now in progress by the Bureau have been completed, as these studies are necessary to determine the relative value and cost of the supplemental water which may be supplied to the valley through the construction of the two projects. The examination now in progress by the Bureau of Reclamation and the report of the Board of Engineers for Rivers and Harbors should be reviewed jointly by the two agencies in order to determine more accurately the benefits and cost allocations to the various interests which will be served by the project.

The execution of contracts with the interests participating in the irrigation benefits of the project should be a prerequisite to the completion of the reservoir. The engineers of the Bureau are of the opinion that the repayment of that part of the construction cost of the flood-control project allocated to irrigation should be computed and stated in accordance with the terms of the Reclamation Act and its amendments and other acts pertaining to the reclamation of lands in the arid West, that is, repayment of the reimbursable portions of the construction cost, allotted to irriga-

tion, in 40 years, without interest, instead of a lump sum as is provided in the report of the Corps of Engineers.

Very truly yours,

(Signed) H. W. BASHORE,  
*Acting Commissioner.*

WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
*Washington, January 26, 1944.*

To: The Secretary of War.  
Subject: Kern River, Calif.

1. This report on preliminary examination and survey of the Kern River, Calif., is made under authority of the Flood Control Act approved June 22, 1936, which provides for a preliminary examination and survey of the "Sacramento and San Joaquin River Valleys, Calif." Separate reports are being made on other areas in the two watersheds.

\* \* \* \* \*

9. The reports of the Board of Engineers for Rivers and Harbors and of the district and division engineers were referred to the Federal Power Commission and to the Bureau of Reclamation for review and comments. In reply, copy herewith, the Federal Power Commission states as its conclusions that a multiple-purpose reservoir at the Isabella site is a desirable element in a plan to develop comprehensively the water resources of Kern River; that its construction should be authorized; that before actual construction is commenced further study should be made of the method of reservoir operation, the provisions for power development at the site, and the relation of the improvement to the Borel power development and to other power plants downstream; and that the authorizing legislation should contain a provision with respect to determination of, and collection of payments for, benefits to downstream power plants.

10. In commenting upon the report the Bureau of Reclamation by letter of October 4, 1940, copy herewith, advised that it believed the construction of the Isabella Reservoir as a flood-control measure to be highly desirable and stated that it was making an investigation of the irrigation requirements in the Kern River Valley. Subsequently the Bureau has submitted to the Flood Control Committee of the House of Representatives, a Summary Report on San Joaquin Valley—Streams Tributary to Tulare Lake, dated August 1943, which briefly covers its investigations of Kern River. Therein, it recommends the construction of Isabella

Reservoir to provide the 550,000 acre-feet of storage found advisable by the Board of Engineers for Rivers and Harbors. The Bureau estimates the direct irrigation benefits and reduction in direct flood damages at \$410,500 annually and \$262,000 annually, respectively, and that the reservoir will enhance the value of the output of existing power plants by about \$68,000 annually. However, its report states that studies concerning the value of conserved water to irrigation and the allocation of benefits to the general public and to local interests have not been entirely completed and expresses the view that the studies of these questions should be continued by the Department of the Interior, the War Department, and local interests, cooperatively, to determine fair charges for the conservation water and in order that repayment thereof may be provided for in accordance with the Reclamation Act. The Bureau advocates construction of the reservoir by the Federal Department having the major interest in it and thereafter placing the improvement in charge of the Department of the Interior for operation and maintenance, its irrigation features being related to those of the Central Valley project.

11. After due consideration I concur in the views of the Board that the Isabella Reservoir should be constructed for flood control and water conservation and that 100,000 acre-feet of the proposed storage space should be initially reserved for exclusive use for flood control until such time as experience or further studies may indicate that this space can also be used for other beneficial purposes. The estimates of benefits made by the district engineer, the Board of Engineers for Rivers and Harbors, and the Bureau of Reclamation all show clear economic justification for the expenditures required for the improvement.

12. The district engineer in his report and in recent supplemental studies finds that flood-control benefits are about four times the combined benefits to irrigation and power. Recent reports made by competent engineers engaged by the local interests also show that flood-control benefits greatly exceed the benefits resulting from use of the stored water. As mentioned above the Bureau of Reclamation now estimates irrigation benefits at more than flood-control benefits but states that its studies are not entirely completed. On the basis of all available information I consider the Isabella Reservoir predominantly a flood-control project and urgently needed to meet a serious present flood hazard. Authorization at this time will permit preparation of plans for prompt construction when national conditions permit.

\* \* \* \* \*

14. In accordance with the policy indicated by existing legislation the cost of the Isabella Reservoir should be borne jointly by the United States and the water users, the United States bearing the cost for flood protection and the water users the cost for irrigation, with proper payment for power benefits as discussed in the preceding paragraph. The exact manner of use of the storage for irrigation purposes will be influenced by future developments in the area and must take cognizance of existing and future water rights established by State law and of the desires of the local in-

terests owning such rights. Continuing studies by the Bureau of Reclamation, this Department, and the local organizations will establish the best plan of operation and appropriate cost allocations. Under these conditions it is considered appropriate that provision be made for the construction of the reservoir with Federal funds, and that after completion and when use thereof is made conservation interests be required to pay the United States for the beneficial use of the conservation capacity, either in lump sum or annual installments.

\* \* \* \* \*

16. I recommend construction of Isabella Reservoir on Kern River, Calif., for flood control and other purposes, generally in accordance with the plans of the district engineer and my comments herein, and with modifications thereof as in the discretion of the Secretary of War and Chief of Engineers may be advisable, at an estimated first cost of \$6,800,000 and \$30,000 annually for maintenance and operation.

(Signed) E. REYBOLD,  
*Major General, Chief of Engineers.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1949

[Extracts from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1949, and for other purposes. (Act June 29, 1948, 62 Stat. 1112, Public Law 841, 80th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1949, namely:

\* \* \* \* \*

### GENERAL FUND, CONSTRUCTION

For continuation of construction of the following projects in not to exceed the following amounts to be immediately available, to remain available until expended for carrying out projects (including the construction of transmission lines) previously or herein authorized by Congress, and to be reimbursable (except as otherwise provided by law) under the reclamation law:

\* \* \* \* \*

Kern River project, California, \$42,500.

# KING HILL PROJECT<sup>1</sup>

UNITED STATES RECLAMATION SERVICE,  
*Boise, Idaho, August 17, 1916.*

From: Board of Engineers  
To: Chief of Construction, Denver, Colorado  
Subject: Report on King's Hill Project—Idaho

1. *Instructions.*—In accordance with instructions of the Director and Chief Engineer, May 13, 1916, and supplementary instructions from Chief of Construction, the undersigned Board of Engineers has examined the King's Hill Project, and submits the following report:

2. *Location and description.*—The project is situated in south-central Idaho, in Gooding, Twin Falls, Owyhee and Elmore counties, upon bench lands lying along both sides of Snake River in the vicinity of the towns of Bliss, King Hill, Glenns Ferry and Hammett, the town of King Hill being near the geographical center and Glenns Ferry, with a population of about 1,200, being the largest town within the project, and an operating division station on the Oregon Short Line Railway system.

The tract comprises about 16,000 acres, extending in a narrow strip on either side of Snake River from near the mouth of the Malad River to Bennett Creek, a distance of 45 miles. The lands of the project have proved to be very fertile and productive, but the surface is broken by a number of deep ravines, which, together with the necessity of four separate crossings of Snake River to reach different parts of the tract, and the great length of the tract compared with its small acreage, makes the irrigation system an expensive one.

The character of the country is such that an unusual amount of flume and pipe construction is necessary, and the formation of much of the country crossed by flumes is such that the unavoidable leakage from the timber flumes used in the original construction caused extensive slides and other disturbances of the surface.

<sup>1</sup> The *King Hill Project* was difficult and costly to operate. In 1929 a committee which made an economic survey of certain reclamation projects concluded that the King Hill Project was an insolvent enterprise and recommended that no further expenditures be made. The Act of June 13, 1934, 48 Stat. 980, authorized the Secretary to enter into a contract with the King Hill Irrigation District, by which the district and the United States would rescind previous agreements and be released from all obligations. The United States entered into such a contract on September 28, 1934.

3. *Water supply.*—The water supply is obtained from the Malad River, the point of diversion being about one mile above its confluence with the Snake River. This stream is fed by springs, starting at a point about three miles from the mouth of the river and aggregating about 1,100 second-feet at the point of diversion. The flow is the same winter and summer except when it is increased by surface waters. The supply of 1,100 second-feet was originally owned by the King Hill project, but was conveyed to the Beaver River Power Company in consideration of an agreement by the latter company to build and maintain the diversion dam on the Malad and the conduit leading from it to the head of the pressure pipe carrying the project water across Snake River, at which point it is obligated to deliver 300 second-feet to the project.

The water supply appears to be unquestioned as to title, unfailing in its source, and ample in amount for the available project lands.

4. *Project status.*—This is a Carey Act project under segregation dated March 7, 1904, for 17,667 acres, and October 6, 1909, for 9,455 acres.

The original project, built by the King's Hill Irrigation and Power Company, included only the lands on the south side of Snake River, but one-third of the water right was conveyed to the King's Hill Extension Irrigation Company, which was organized to cover the lands on the north side of the river in the vicinity of King Hill, Glens Ferry and Hammett. For the purpose of this report, the original King's Hill project and the King's Hill Extension project are considered as one enterprise.

The irrigation works were completed in accordance with the original plans, and water was first used on the original segregation in 1910 and on the Extension in 1911, since which time delivery has been made during each irrigation season.

5. *Reports.*—From time to time reports have been prepared by engineers and others, in response to the demand of State and other public authorities. The most comprehensive of these reports is that of Mr. George B. Archibald, Carey Act Inspector of the General Land Office, who, under date of December 15, 1914, submitted to the Commissioner of the General Land Office a complete record of the project from its inception. The Archibald report is so complete in its historical, legal, fiscal and engineering data that we have relied upon it as our principal source of information for historical data without undertaking the examination of original records of the Courts and State of Idaho. Much engineering data were obtained from a detailed report by State Engineer Frank King, dated November, 1913. Many other reports have been consulted, and all available data considered.

6. *Stage of project development.*—The distributing system covered an aggregate area under the two branches of the project variously estimated at from 15,000 to 20,000 acres of good irrigable land. Of these lands, 17,244 acres were entered under the Carey Act or as State lands, and were covered by contracts with the operating company for their water supply. Settlement pro-

gressed rapidly soon after water became available, but has latterly declined on account of the uncertainties of the water delivery. At present there are 129 water users resident upon the project, engaged in the cultivation of approximately 5,000 acres distributed along the 50 miles of main canal with its lateral system. This represents a project agricultural population of approximately 500 people, who have achieved very considerable success in the development of productive farms and comfortable homes, notwithstanding the drawbacks consequent upon the frequent interruptions of the irrigation service.

After a few years of operation the two construction companies failed to maintain the canals and they were then operated by a Receiver. The Receiver's certificates were taken by the State of Idaho, and title to the works now vests in the State through foreclosure sale.

The foreclosure sale extinguishes the title of the construction companies and leaves the State, acting as trustee for the settlers, owner of the system on which there has been paid only a small part of the contract price of \$65 per acre.

The condition of the works is such that a large amount of reconstruction is required to place the system in proper condition for successful operation. The present investigation and report is intended to determine the feasibility of completing the project in a substantial manner, charging the additional cost as the final construction cost to be repaid by the settlers.

7. *Field surveys.*—A field examination of the entire project was made to check up elevations, distances, cross-sections and dimensions of the project canals and structures for the purpose of verifying data presented by the various written reports at hand. Careful study was given to the numerous maps, profiles and plans, together with the King and other engineering reports, and sufficient field surveys were made to confirm the general accuracy of the written records. The field surveys also included a cruise of the available irrigable land under both divisions of the project.

A preliminary field inspection of the project was made in May, 1916, at which time the main canal and lands were examined from the headworks to the lower end of the project, particular attention being paid to the condition of river crossings, pipe lines, flumes and structures under the current method of operating the system. On August 8, 9 and 10 the undersigned Board, accompanied by Assistant Engineer, R. J. Newell, and Mr. B. P. Shawhan, Manager of the project for the State, went over the entire project, much of the distance on foot, and made a complete examination of the present state of irrigation works and the cultivated lands.

8. *Brief description of works.*—The lands under the project are widely scattered, on benches or in "basins" along Snake River at elevations of from 50 to 250 feet above the stream. They lie in narrow margins along the main canal, known as a "Shoestring" location, with expansion into considerable areas near King Hill, Glenns Ferry and Hammett. Aside from the unfavorable group-



ing of the lands for water distribution, they are well situated with reference to main line railroad transportation, established towns and markets, and moderate elevation above sea level. The project was laid out on the basis of one second-foot of water to 80 acres of land, and the indications are that this is a safe estimate.

The original works consist of open canals in earth, of timber flumes on steep hillsides, the same supported on trestles across gulches, wood stave pressure pipes supported on steel bridges for river crossings and wood stave pipe laid on timber saddles as a substitute for fluming across some of the depressions. All timber structures rest upon earth foundations, without the use of concrete supports. Some portions of the canals have been lined with concrete since the original construction was completed, and the following is the amount of the different types of construction now in use:

	<i>Miles</i>
Earth canal, unlined.....	37.0
Earth canal, concrete lined.....	1.7
Timber flumes .....	9.4
Wood stave pipe, 42" to 100".....	4.2

Other perishable construction comprises a large amount of smaller sizes of wood pipe on the distribution system.

The main difficulty with the operation of the present system has come from the use of such a great extent of timber flumes on a foundation rendered unstable by water. This material showed no signs of movement previous to the building of the flumes, nor does it show any movement now where the flumes are kept reasonably tight. The earth sections of the canal give no more trouble than is usually experienced in this type of construction, the parts of the earth canal located on the more dangerous ground having already been lined with concrete.

9. *Present condition of works.*—The system as a whole is badly depreciated. Nothing short of extensive reconstruction of the flumes and the substitution of more permanent types of work will afford a satisfactory remedy.

The canal system as now being operated is in a very precarious condition, frequent breaks occurring in spite of the constant vigilance of the operating force. One of these breaks, caused by the sudden failure of one of the main structures, forced a complete cessation of service during the summer of 1916 for a month and caused severe damage to crops.

During recent years the cost of operating and maintaining the system has been as follows:

1913 .....	\$23,405
1914 .....	27,170
1915 .....	19,198
1916 .....	17,721

During 1913 and 1914 the expenditures included much permanent betterment work, mainly in concrete lining. The gradual

decrease in amount expended is not due to any general improvement in condition, but solely to lack of funds. Conditions are rapidly approaching a stage where further operation will be impossible without extensive reconstruction of parts of the works, which would be both wasteful and useless unless it constituted a part of a complete program of rehabilitation.

10. *Alternative plans for reconstruction.*—Many different types of reconstruction have been proposed. Some have advocated keeping the main canal on the north side of Snake River, crossing the river and joining the present canal at a point nearly south of Bliss. Ex-State Engineer King proposed following the present system to the end of the 14th mile, where he would cross Snake River by a wood stave pipe to good supporting ground for an earth canal on the north side of the river, recrossing the river in the same way and joining the present line 19.6 miles from the head. He also proposed to use a tunnel from Station 840 to 870 and from 877 to 904, cutting out some of the worst flume work.

Another plan proposed is to abandon the first 20 miles of the canal and to supply the canal at or near the 20th mile by pumping from Snake River, using power generated by a power plant on the river near this point.

It has also been proposed to supply the lower end of the system, in the vicinity of Hammett, by a pumping plant, either leasing or developing the necessary power.

Some of these proposals may have merit, but they would require extensive investigation to show it, and we do not believe they would effect any such radical change in cost as would affect the feasibility of the project.

11. *Extensions.*—Various extensions of the project have been considered from time to time, mainly by means of developing small storage reservoirs on Canyon, Alkali, Cold Springs and Bennett Creeks, these being minor tributaries of the Snake on its north side below Glenns Ferry.

The land proposed to be watered under the above aggregated about 6,000 acres, situated above the main canal of the project, as constructed, and west of Glenns Ferry. These lands constituted a part of the Carey Act segregation of the company and are reported to have been sold at \$6.25 per acre.

There is no evidence satisfactory to the Board that the stream flow of the above creeks is adequate to water as large a body of land as 6,000 acres. Runoff records are very scanty and so far as they go point to the occurrence of periods when the flow of these creeks would be totally inadequate.

This board therefore believes that these extensions should not be considered practical until more complete and reassuring stream flow data is accumulated.

Another extension of the project is possible by enlarging and lengthening the pressure pipe crossing the Snake at King Hill. About 1,200 additional acres may be thus watered at less than average project cost. In view of the fact that these lands have not hitherto been included, this board has not provided for their irri-

gation in the estimates of cost, although the extension appears practicable and desirable from an engineering standpoint.

12. *Suggested plan of reconstruction.*—The present works have been in use from six to seven years, in which time all the weak spots have been developed and some have been cured. We feel that an estimate of reconstruction upon the present location will be reasonably safe and that modifications can be made when careful study shows that they will effect a saving.

In the proposed reconstruction all timber flumes are to be replaced. In a few unimportant cases, short flumes will be replaced by earth sections, and in all other cases they will be replaced by steel flumes with concrete approaches and concrete footings.

The trestles will be replaced with new timber trestles resting on concrete pedestals.

The wood stave pressure pipes will be retained, with some repairs, but they will be supplied with concrete supports, and with concrete pressure boxes where the present boxes are of timber.

The earth canals are in good condition and will only need to have their banks raised in places and to have the present wooden tap boxes replaced with concrete.

Concrete lining has been estimated upon to fill short gaps between sections of lining now in place, and in places where necessary to insure against breaks.

An allowance has been made for repairs and extensions of the lateral system, and a new telephone line has been included.

13. *Estimated costs.*—Reconstruction of the present system as above outlined, to enable it to supply the net irrigable area of 16,000 acres, is estimated to cost as follows:

Main canal work:

Steel flumes .....	\$308,560	
Concrete lining for canals.....	36,500	
Repairs to pressure pipes.....	48,200	
Repairs to canals in earth.....	30,300	
Structures .....	40,830	\$464,390

Distribution system .....	46,740
Telephone and miscellaneous.....	16,100

Total ..... 527,230

These figures include an allowance of 15% to cover engineering and overhead costs, and a small contingent margin. In view of the fact that the system has been tried out for years and all weak spots ascertained by experience, there is small likelihood of unforeseen construction difficulties of magnitude. In addition it may be stated that the unit prices used are in themselves sufficiently liberal to establish a substantial margin of safety; moreover, in all cases of doubt the estimates have included provision for new structures with no allowance for salvage on present structures.

14. *Irrigable area.*—The area in the project is 16,000 acres of good irrigable land, included under the present canals and laterals. This area can be increased by extensions, and we think the water supply may justify an increase to a total of 17,500 acres, but for the purpose of this report the project area will be taken as 16,000 acres, the amount under the present canals and laterals.

15. *Cost per acre.*—The construction cost of \$527,230, divided over 16,000 acres, is \$32.95 per acre.

16. *Previous payments.*—There has already been paid by the holders of water rights on 15,000 acres the sum of approximately \$225,000. In some cases the original water right of \$65 per acre is fully paid up and in others only the first payment of \$6.50 per acre, or less, has been made. It seems probable that suitable adjustments of credit can be made in behalf of the water users under a district or other form of organization for rebuilding the project.

17. *Rights of way and titles.*—The records seem to be conclusive as to all necessary rights of way for the canal system. The deed to the State of Idaho, following foreclosure sale of the King's Hill project, is dated April 20, 1914. Apparently the title to the Extension portion of the project has not yet been vested in the State, although it is understood that its general status is similar to that of the main project. The Malad River water right is believed to be perfectly secure. These are matters which would have to be examined and confirmed by legal authority preliminary to any negotiations for taking over the project.

At the head of the entire system the water supply is dependent upon the Idaho Power Company for the maintenance of large flume and headworks on the Malad River, through which the total supply of about 1,100 second-feet is conveyed for about one mile to the branch opposite the power plant, where 300 second-feet of water is diverted to the irrigation pressure pipe crossing Snake River. This large power flume, owing to poorly constructed foundation, is in a precarious state, and the power company is now considering feasible methods of reconstruction and improvement. The irrigation enterprise is dependent upon a proper solution of this difficulty by the power company, or otherwise upon independent reconstruction for irrigation purposes. It is thought that there can be no serious question that the power company, a subsidiary of the Electric Bond and Share Company, will reconstruct its flume in a substantial manner. Its water supply for its power plant, developing 5,000 horsepower, is dependent upon this flume, and its title to the water seems to be conditional upon its delivery of 300 second-feet to the irrigation project.

18. *Present cost of operation & maintenance.*—This project if taken over must be maintained and operated during the process of reconstruction. On account of the necessity of operating the system during the process of reconstruction, there would be a period of at least one, and possibly two, years during which the project would have to be operated in its present poor condition. We have made an estimate of the cost of operating the system for

one year, including such repairs to the system as seem to be absolutely necessary to keep it in operating condition.

For ordinary operation and maintenance.....	\$8,000
For emergency repairs of breaks in canals, pipe, and flumes.....	5,000
For upkeep and repairs to old structures.....	12,000
	<hr/>
Total annual requirement.....	25,000
Less probable collections from water users for O. & M.....	5,000
	<hr/>
Net appropriation required.....	20,000

This annual charge, or possibly more, will probably be required during the next year or two, until the general reconstruction of the project can be undertaken. If such reconstruction is long delayed, much greater sums will be required to prevent entire failure of the water service.

### SUMMARY

(A) The total original construction cost of the combined project approximated one and one-half million dollars; the companies making this expenditure are now bankrupt or defunct, and the State of Idaho is in possession of the property, having expended \$30,000 in redemption of Receiver's certificates and from \$50,000 to \$60,000 additional in the maintenance of the project since taking it over.

(B) The irrigation system completed a few years ago contains much perishable construction, now decayed to an extent that further operation will shortly be impossible without radical reconstruction. Such reconstruction must for reasons of general economy follow comprehensive lines of general betterment indicated herein.

(C) A large body of settlers are on the ground and another large body of citizens have purchased lands, relying on the supposed endorsement of the enterprise by both State and Government, on account of its being a Carey Act project. Payment by settlers for water rights have aggregated about \$225,000, and values in stock and land improvements estimated at about \$500,000 have been created by the settlers. All of this investment and value will be an absolute loss, entailing great hardships upon the settlers whose homes and property will be sacrificed, if the project be not reconstructed in a substantial manner, as indicated in this report.

(D) The estimate submitted indicates a cost of about \$33.00 per acre for putting the project upon a secure going basis, similar to United States Reclamation Service projects. Careful investigation will probably show that improvements in location or character of main canal construction will either reduce the capital cost for construction or with slight increase of such cost will reduce the cost for the maintenance, and therefore the total ultimate outlay by the settlers.

(E) The King's Hill Project is not such an irrigation enterprise as would be selected by the Reclamation Service for original construction. Nevertheless, this project after consuming one and one-half million dollars does now present a good prospect for successful agricultural settlement at a relatively low acreage cost for reconstruction, with assurance that such investment will be well secured by the value of the property.

(F) The water supply in Malad River is exceptionally secure. We find, however, that the proposed reservoir system for conserving the uncertain flood waters of the Little Canyon, Alkali, Cold Springs and Bennett Creeks is of doubtful utility and not to be recommended, at least for present development. Moreover, such reservoir supply is not needed for the 16,000 acres under the proposed project, and is only to be desired in the event that extensions to this area prove ultimately feasible and advantageous.

(G) The title to the main portion of this property seems to be vested in the State of Idaho, without right of redemption by the bankrupt companies. Any favorable consideration of the project should be subject to the complete establishment of this title in the State, free from all clouds by mortgage of the construction companies or for creditors and manufacturing companies which furnished bridges, pipes and other materials.

(H) Our conclusion would be that the King's Hill Project might safely be taken over by the United States and handled through the Reclamation Service after organization into an irrigation district under the Idaho State law. This, in our opinion, should be a condition precedent to any action by the United States. The entire body of land under the irrigation system should be included in the District and thereby bound to the repayment of all funds expended for reconstruction and maintenance until the works could be turned over to the District.

(Signed) A. J. WILEY,  
*Consulting Engineer.*  
E. G. HOPSON,  
*Consulting Engineer.*  
D. W. COLE,  
*Senior Engineer.*

## PROVISIONS OF SUNDRY CIVIL EXPENSES APPROPRIATION ACT, 1918

[Extract from] An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eighteen, and for other purposes. (Act June 12, 1917, 40 Stat. 105, 148, Public Law 21, 65th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the fiscal

year ending June thirtieth, nineteen hundred and eighteen, namely:

\* \* \* \* \*

King Hill project, Idaho: For beginning construction, maintenance, operation, and incidental operations, \$200,000: *Provided*, That no part of this appropriation shall be expended until the Secretary of the Interior shall have determined that the said King Hill project is practicable, as provided by Section four of the act approved June seventeenth, nineteen hundred and two, known as the Reclamation Act, and shall have adopted the said project under and subject to the provisions and conditions of the said Reclamation Act.

DEPARTMENT OF THE INTERIOR,  
UNITED STATES RECLAMATION SERVICE,  
*Washington, D. C., June 18, 1917.*

The SECRETARY OF THE INTERIOR.

SIR: Provision has been made in the Civil Sundry Bill for an expenditure of \$200,000 for the King Hill Project, Idaho, upon which it is proposed to spend the sum of \$800,000.

An irrigation district has been formed for the purpose of contracting with the United States for the work, and there is handed you herewith a draft of contract.

This contract form contains one improvement over the contract with the organized water users of any project heretofore undertaken, namely, a plan whereby those who cultivate their lands will be favored in the character of the instalment plan, under which reimbursement may be made to the United States through the irrigation district.

This plan is embodied in paragraph 8 and provides for the repayment to the United States in five equal annual instalments, with provision that if a certain reclamation program be carried out by the individual land owners they shall have 20 years in which to make repayment through the district. If, however, the program is only carried out to a specified extent, the land owners have 10 years in which to make repayment through the district.

Provision which I believe sufficient for the carrying out of such a program on the part of the irrigation district is made in the Idaho Irrigation District Law as follows:

Whenever any amount of money shall have been advanced by the United States for the construction of irrigation works, contemplated under the provisions of this title, by the authority of said Act of Congress, the taxing powers of the district, as provided in this title, shall be used to repay into

the Treasury of the United States the amount of money so advanced in the manner contemplated in this title, and *as may be provided in such contract between the Directors of said district and the United States*; and such levies and assessments shall be made each year under the authority of the district as will return to the Treasury of the United States the amount or *proportion of such money advanced as may have been agreed to in such contract*. (Section 2398 of Idaho Revised Codes as amended, Laws of 1915, page 304.)

This plan, if adopted, will unquestionably be efficacious in bringing the lands under immediate cultivation and will, as regards this project at least, do away with the long period of partial cultivation which has held back several of our reclamation projects. Our reports from field officers of the Service, indicate that the Directors of the irrigation district are strongly for this feature.

The lands of the project were largely segregated under the Carey Act and there has been a long period of struggle and ill-success; the lands of the district have been partially under cultivation for a number of years through a make-shift system.

While lands segregated in favor of the State under the Carey Act are not expressly referred to in the Act of August 11, 1916, commonly known as the Smith Act, the intention of the Statute to confer upon irrigation districts the power of taxation over all public lands of the United States where the project is approved by the Department of the Interior, is evident. It is quite probable that the lands can be patented prior to the payment date of the first instalment in December 1919, with due diligence in our construction program, and under the contract terms requiring cultivation above outlined.

It is recommended that the draft of contract be approved and that the Commission be authorized to negotiate the making of contract in substantially the form approved.

Respectfully,

(Signed) W. R. KING,  
*Acting Director and Chief Counsel.*

Recommendation approved July 2, 1917.

(Signed) FRANKLIN K. LANE,  
*Secretary.*

UNITED STATES RECLAMATION SERVICE,  
*King Hill, Idaho, October 29, 1917.*

From: Board of Engineers  
To: Chief of Construction  
Subject: Cost estimate, King Hill Project

1. A detailed study has been made by the Project Manager of the parts of the King Hill Project main and extension canals



which require reconstruction. The items are listed in Exhibit A together with estimates of cost.

2. The proposed reconstruction is based in general upon the following principles.

a. that all wood pipe siphons be continued in service, the construction work being confined to building of proper supports to keep them from contact with soil.

b. that all trestles be kept in service with such renewal of parts as may now be necessary, the footings however to be changed to concrete pedestals.

c. that wood flumes in the Extension canal be continued in use, these structures being regarded as reasonably safe for many years.

3. As regards the lateral system it is proposed not to change the previously existing company method of building and maintaining laterals only to within one half mile of any legal subdivision, leaving it to the farmer to build and maintain his own lateral to his land. Construction work should include all reconstruction of such lateral headgates and lateral outlets as are at present insufficient or may wear out within the next few years. Further work is considered as maintenance and operation.

4. A detailed estimate of the cost of above lateral reconstruction has been attempted but the individual items are at present so uncertain that it has been deemed best to omit them from this report and simply include a lump sum item.

5. Storage was not a part of the original project and in view of the unfailing water supply at the headgates and the liberal provision of canal capacity its consideration at the present time as a new feature is not deemed desirable. It may be wise, however, to leave the total area to be irrigated somewhat elastic, especially as regards very gravelly land not heretofore irrigated and land requiring pumping, and to defer definite announcement on this point until after the duty on gravelly land shall have been found by test and it be known with reasonable certainty that the project area when fixed can be fully supplied.

6. For your general information a rough estimate has nevertheless been made of cost of storage but it is based merely on the few data contained in the King report, with such alterations as to unit prices as seem proper under present conditions. The cost per A. F. of storage capacity is extraordinarily high (\$44). There is some doubt as to the inflow being sufficient to fill the reservoir each year.

7. Referring to the type of construction of new main canal flumes where old flumes must be reconstructed estimates were made on the basis of rectangular concrete flume for all sizes carrying more than 250 S.F., except that for 1927 ft. of smaller flume the use of gunite is assumed, and where flume rests on trestle circular fir flume has been figured.

8. The saving which may be accomplished by the use of gunite

instead of concrete, and also by the use of circular fir flume throughout, is shown in the following general summary:

### GENERAL SUMMARY OF ESTIMATE

A.	1. Examination and surveys.....	\$30,000
	4. Canal system .....	637,000
	5. Lateral system .....	80,000
	9. Irrigable lands .....	5,000
	10. Permanent improvements .....	6,000
	11. Telephone system .....	16,000
		<hr/>
	Cost on basis of this report.....	774,000
	Cost on basis of substituting gunite:	
	For concrete flume $n = 0.016$ .....	\$748,000
	For concrete flume $n = 0.015$ .....	720,000
	Cost on basis of circular wood flume.....	652,000
	B. Cost of cleaning extension canal.....	18,000
	C. Cost of gunite lining extension canal....	13,000
	D. Cost of gunite flume on bench. Circ.	
	wood flume on trestle & sundries to re-	
	place wood box flume on extension canal.	113,000
	E. Cost of storage, 5,000 a.f.....	220,000

9. The unit prices on which the estimates are based are necessarily high. Still should labor and market conditions grow even worse than they are now this high cost may be exceeded. On the other hand should construction be deferred until more normal conditions return the cost may be greatly reduced.

10. It is believed that item A amounting to \$774,000 should be considered as the minimum cost of project reconstruction under present conditions.

11. Item B (\$18,000) consists of cleaning of the Extension Canal. The work should be done but might be paid for by the farmers as maintenance and operation.

12. Item C is an arbitrary estimate of lining parts of the Extension Canal with  $1\frac{1}{2}$ " gunite figured for 6,600 square feet at 15¢ per square foot. There is some seepage along this canal but it is as yet uncertain whether it is so serious as to justify any lining.

13. Item D consists of replacing wood flume now in good and safe condition and building appurtenant new structures. This is entirely unnecessary at the present time as was previously stated.

14. The feasibility of the project might be reasonably viewed from the standpoint of the total cost of the project being \$825,000, and of the area being possibly cut down to 15,000 acres resulting in a reconstruction cost of \$55.00 per acre, with the underlying obligation of the farmers to maintain the system and especially replacing wood flumes in the Extension Canal, to build their own lateral from the points where Government construction stops and to provide for drainage of their lands when necessary.

(Signed) D. C. HENNY.  
JAMES MUNN.  
J. H. MINER.

Approved (Signed) A. P. DAVIS.

UNITED STATES RECLAMATION SERVICE,  
*King Hill, Idaho, May 27, 1918.*

From: J. H. Miner, Walter Ward and J. L. Savage  
To: Chief of Construction  
Subject: Proposed Changes in the Construction Recommended in Board Report of October 29, 1917, and in the Construction Program Recommended in Board Report of April 17, 1918.

1. Conditions have developed during the present irrigation season which necessitate material changes in the estimated cost of the King Hill Project as given in Board of Engineers' Report of October 27, 1917 (Exhibit "A"), and in the construction program recommended in Board of Engineers' Report of April 18, 1918 (Exhibit "B").

2. The proposed changes are largely due to trouble at Siphon No. 1 and at the Big Pilgrim Siphon. However, the increase in the estimated cost of the completed project is also largely due to the increasing cost of labor & materials.

3. When water was turned into the system at the beginning of the irrigation season, leaks developed in Siphon No. 1 between station 93+00 and 99+00 to such an extent that the foundation became saturated. The softening of the foundation caused settlements of the pipe and increased leakage until it was necessary to turn the water out for repairs. The settlement amounted to 18 inches in one length of fifty feet which opened butt joints of staves as much as  $1\frac{5}{8}$ ". The slide is still developing along a line twenty feet above the siphon for a distance of about 250 feet in length, and there is great danger that the movement may be sufficient to put the siphon entirely out of use notwithstanding the fact that a double shift of watchmen are repairing the leaks continually. The portion of the pipe which is giving trouble was built partly on earth and partly on deep soil covering a rather steep slope of joint clay. It is quite evident that the siphon through this reach can not be maintained on the present location and that this portion of the siphon should be replaced with permanent construction before the next irrigation season.

4. The portion of this siphon from station 84—00 to 93—00 is constructed on somewhat better foundation material than the portion now giving trouble but any considerable amount of leakage through this portion would be likely to cause trouble similar to that described in paragraph 3. It is believed that this portion of the pipe can be maintained for the period of its useful life but that eventually it should be replaced by more permanent construction on a different location.

5. The portion of the siphon from station 71+84 to 84+00 is quite safe against foundation trouble for most of its length, but through this reach the pipe is constructed practically on the hydraulic grade line and flows only partly full at present maximum

capacity. On this account the pipe has flattened to some extent and shows signs of collapsing. It is also subject to rapid decay of staves, particularly at the water line inside the pipe, due to partial flow conditions. This portion of the siphon can be maintained for the period of its useful life, but in our opinion it should eventually be replaced with more permanent construction.

6. The portion of the siphon from station 56+34 to 71+84 crossing Snake River must of necessity be retained as a part of the permanent system. This portion of the pipe is in rather bad shape due to the accumulation of earth against the bottom of the pipe and consequent decay of staves and cradles. Many of the bottom staves are decayed to such an extent that in spots only about one inch of good lumber remains out of the original thickness of  $2\frac{1}{2}$  in. The pipe can be repaired and made to serve for several years by cleaning out gravel, replacing some of the cradles, and repairing the bottom staves. Eventually, however, the pipe should be rebuilt preferably with creosoted staves on a suitable concrete foundation providing gutter to carry away leakage and drainage water. No work is contemplated by the United States on this portion of the siphon other than cleaning around pipe, as it is proposed to leave the maintenance of the permanent portions of the system to the Irrigation District.

7. We therefore recommend that the Board of Engineers' Report of October 29, 1917 be amended as follows in connection with the reconstruction of Siphon No. 1:

a. That the first 1550 feet of the siphon from station 56+34 to 71+84 be retained as a part of the permanent system and that the replacement of this portion of the pipe be left to the Irrigation District, including the concrete foundations. The construction of the concrete foundations should be postponed until it becomes necessary to rebuild the pipe for the reason that special construction effecting the present subgrade will be necessary to properly protect the pipe. It is also believed that any wooden cradles installed to replace the present cradles will outlive present staves.

b. That the portion of this siphon from station 71+84 to 93+00 (approximately) be maintained in its present location during its useful life on wooden cradles, and that eventually it be replaced by concrete flume on bench. The bench on which the original (wooden) flume was constructed is available throughout most of this distance and has suitable grade and alignment for the concrete flume.

c. That the portion of the siphon from station 93+00 (approximately) to 103+10 be replaced by concrete bench flume before the beginning of the next irrigation season.

8. The Board Report of October 29, 1917 contemplated a large amount of gunite work between stations 103+80 and 235+50. One item of this proposed gunite work included a two inch gunite lining between two stretches of concrete flume from station 124+58 to 129+30. The present earth canal between these stations is much wider than necessary for the proposed lining and would require considerable backfilling. The section is only 473 feet long and we believe that a much better job will be obtained

at practically the same cost by making the concrete flume continuous through this section.

9. Three items of this proposed gunite work covered the addition of one inch of gunite on old concrete lining as follows:

Station 108+50 to 112+40, 387 ft.....	\$2,145.00
Station 177+75 to 178+52, 77 ft.....	426.58
Station 186-60 to 232-50, 4590 ft.....	25,428.60
Total .....	28,000.18

This recommendation was based upon information furnished by Mr. Hillstone (Superintendent of the King Hill District) and upon the fact that the canal had broken in two places caused by leakage through the lining. The concrete lining throughout the above stretches has been carefully inspected by two of the undersigned with water out of the canal and it is believed that the present lining is in good condition throughout most of the distance and that only slight patching will be required in addition to the repairs necessary at the two breaks.

10. We therefore recommend that the Board of Engineers' Report of October 29, 1917 be amended as follows in connection with repairs between stations 103+80 and 235-50.

a. That the two breaks near stations 208-00 and 230-00 be repaired in the manner outlined by the original Board.

b. That the present concrete lining be repaired by patching joints and cracks with either hand laid concrete or gunite whichever is most economical, and wherever necessary. (This may include the relaying of 300 feet of lining in one stretch.)

c. That the addition of one inch of gunite to the present lining be eliminated.

d. That concrete bench flume be substituted for the two inch gunite lining from station 124-58 to 129-30.

e. That two inch gunite lining be provided in the remaining sections between station 103-80 and 235-50 as proposed by the original Board.

11. When water was turned into the Big Pilgrim siphon at the beginning of the present irrigation season much trouble was experienced from breakage of staves. In five different cases the projecting ends of staves were blown off indicating that the pipe has about reached the end of its useful life. In places the staves were found badly worn on the inside, which may account for some of the blow outs. The leakage caused additional settlement of trestle and distortion of pipe and although these leaks have been repaired and the pipe made comparatively tight the fact remains that this structure is in a precarious condition and can not with safety be operated more than a very few years even with extensive repairs to both pipe and trestle.

12. The Board Report of October 29, 1917 proposed certain repairs to the pipe and trestle and the construction of concrete cradles and pedestals at an estimated cost of \$5,775.00. This work might leave the pipe in safe condition for perhaps three or four

years, but in our opinion the pipe and trestle would both require replacement in that length of time and possibly sooner.

13. The reconstruction of this siphon on a 100-foot trestle does not appear justified from the experience had with the present structure and it is our opinion that more substantial construction should be used on account of the fact that the structure is near the upper end of the system and the whole project is dependant upon it. In this connection reference is made to paragraph eight of letter dated May 22, 1918 from the Project Manager to the Chief of Construction (Exhibit "C").

14. We therefore recommend as follows in connection with the Big Pilgrim Siphon:

a. That the present structure be replaced before the next irrigation season with either a creosoted wood stave siphon similar to the one proposed at Deer Gulch, or a concrete bench flume built on the contour and crossing the gulch on a low concrete trestle.

15. Complete data is not available for a careful estimate of either of these alternatives, but from the data which is available it appears that the creosoted wood stave siphon will cost \$30,000.00 and the concrete bench flume \$55,000.00. Careful surveys will be made at once to verify the above estimates, and if the above estimates are found approximately correct we believe the creosoted wood stave siphon should be built in preference to the concrete flume in order to utilize the difference in cost at other urgent points on the system.

16. The cost data thus far available covering work already completed indicates that a large part of the work will cost more than estimated in the Board Report of October 29, 1917 which is to be expected on account of the increase in material costs and the inefficiency of present day labor.

17. A revision has been made of the total estimate for the completed project, a copy of which is attached hereto. It will be noted that the total estimate as revised, including the important changes discussed in paragraphs one to sixteen above, amounts to \$1,000,000.00 which is comparable with the total of \$774,000.00 as estimated in the Board Report of October 29, 1918. The difference of \$226,000.00 is largely due to the changes recommended at Siphon No. 1 and in Big Pilgrim and also to the considerable increase made in unit costs particularly on concrete flumes. These costs should come well within the estimate if conditions permit long fall campaigns with a selected organization and only small advances in wages. In the above estimate of \$1,000,000.00, no changes were made in the October 1917 estimates for work to be done in the King Hill Extension and only very minor increases were made in work as originally estimated below station 927—28, the end of the completed concrete flume. The cost data thus far available (not sufficiently complete to be conclusive) indicates that the gunite flume has been constructed within the estimate and that the work generally below station 927+28 can be constructed within the Board estimate of October 29, 1917.

18. A revision of the construction program outlined in Board Report of April 17, 1918 has been made, based upon the revised total estimates and the recommendation herein above made. Copy of the revised construction program is attached. The construction program of April 17, 1918 contemplated that the construction forces would be concentrated on the section of the main canal between Snake River and the lower end of the Four Mile flume, omitting only the canal enlargements through the earth section.

19. We have proceeded with the same policy, but in order to keep the estimated cost of the proposed work for the fiscal year 1919 within the appropriation it has been necessary to take certain work out of fiscal year 1919 and place it in fiscal year 1920 as follows:

All work contemplated at Tuanna Flume

All work contemplated at Cassia Flume

Concrete flume from Sta. 759+49 to 778+32

Concrete flume from Sta. 784+76 to 829+60

Deer Gulch Siphon

20. The postponement of the work at Tuanna and Cassia flumes should not be serious as we believe with minor repairs they can be operated one more season without difficulty. They are also isolated jobs which will require separate camps, and for this reason it may be an advantage to postpone the work as most of the canal excavation that has been deferred until 1920 could be handled from these camps.

21. The existing wooden flume on the two stretches of concrete flume that are recommended to be postponed until 1920 are in the best condition of any of the present flumes, as it is built on lava rock foundation. There should be no trouble in operating these sections for one more season. These two sections of flume are on either side of Big Pilgrim siphon and amount to 6367 lineal feet, which is a good sized job and could be economically handled in 1920.

22. We have also recommended deferring the construction of Deer Gulch siphon until 1920. The wooden flume that this siphon is to replace, while not in as good condition as that on the lava rock foundation is not apparently in a dangerous condition and we believe with minor repairs can be successfully operated one more season.

23. The Board Report of April 17, 1918, contemplated that the gunite work from Sta. 1300 to 1363 would be done during the spring of 1919, but we recommend deferring this until the fiscal year 1920. We believe that the present wooden flume and earth canal through this section can be operated one more season by doing a small amount of repair work.

24. In case we are able to do the work now proposed more economically than estimated or if funds become available from some other source, we may be able to purchase the necessary material next fall and complete this gunite work in the spring of 1919 as originally planned. The estimated work for the fiscal year 1919 exceeds the appropriation requested. This is consistent be-

cause the project has on hand considerable material (particularly reinforcing steel) and the greatest part of the equipment that will be depreciated into the cost of the year's work.

25. Board Report of October 29, 1917, is referred to as Exhibit "A" but copy is not attached. Board Report of April 17, 1918, is attached as Exhibit "B." Letter of May 22, 1918, from the Project Manager to the Chief of Construction, subject "Change in estimate of reconstruction—King Hill Project" is referred to as Exhibit "C" but copy is not attached.

#### APPROVAL OF RECOMMENDATIONS

In order to make the best use of the present organization through the period of the present irrigation season and to prepare properly for the fall campaign it is essential that materials be delivered as soon as possible. This is particularly desirable so that the cutting of steel and such work can be done in advance of actual construction. We therefore recommend that the changes as outlined in this report be given early consideration and that approval of the changes be given promptly so that work on designs may proceed and materials be purchased without delay after the appropriation is assured.

(Signed) J. H. MINER.  
WALTER WARD.  
J. L. SAVAGE.



# KINGS RIVER PROJECT

BUREAU OF RECLAMATION,  
*Washington, January 23, 1940.*

The SECRETARY OF THE INTERIOR.

SIR: I am transmitting the report of the Bureau of Reclamation on the Kings River project in California, prepared after careful investigation of the project and consultation with the Corps of Engineers of the War Department, which is making a similar report. There is appended a tabulation presenting descriptive and factual data on the project. The Bureau report contemplates a storage project for supplemental irrigation water on about 800,000 acres of developed land, and for flood control and power development. The report of the Chief of Engineers, War Department, omits power development, which the Bureau considers essential to the proper and most beneficial utilization of conserved waters.

Both reports recommend allocating one-half the cost of the reservoir to flood control. The Bureau report contemplates repayment of construction costs allocated to irrigation in the amount of \$9,750,000, in 40 years without interest, requiring annual construction installments of \$243,750. The Chief of Engineer's report proposes a lump-sum payment by irrigation interests upon completion of construction of \$5,200,000, which amount, if borrowed, and retired in 40 years with interest at 3½ percent, results in annual costs to the irrigators equivalent to the Bureau plan.

In this project irrigation and power combined exceed flood control, both as to costs and benefits. Since navigation is not involved, and the flood damage to be eliminated is almost wholly local, as also are the anticipated flood control benefits, the project is more one for irrigation than for flood control.

The Chief of Engineers proposes that all operation and maintenance of the project be perpetually performed by local interests at their own expense and that a reduction of the local contribution to the extent of \$400,000 be made in compensation for operation and maintenance costs chargeable to flood control. In my opinion, the complexities of irrigation uses, the potentially conflicting interests of irrigation and flood control, the coordination of power production by the Kings River and Central Valley projects, and

the prospect of the sale of water from the Central Valley project to portions of the Kings River service area, make it highly advisable for the Government to operate the contemplated Kings River project works, leaving the operation of the canals and the distribution of water in local hands. Water releases, except in rare cases, must conform to vested irrigation rights.

In the circumstances, I believe that the project, if and when undertaken, should be constructed and operated by the Bureau of Reclamation because of the preponderance of irrigation and agricultural use. The development is greatly desired by the people of this thickly settled area which it would admirably serve. No new lands are to be developed. The benefits far exceed the costs. The project is desirable, and clearly meets all requirements of feasibility and authorization under section 9 of the Reclamation Act of 1939. I recommend that a finding of feasibility, together with the report, be submitted to the President and to the Congress in compliance with that act.

Respectfully,

(Signed) JOHN C. PAGE,  
*Commissioner.*

THE SECRETARY OF THE INTERIOR,  
*Washington, January 24, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the National Resources Planning Board).*

MY DEAR MR. PRESIDENT: There is transmitted a letter of January 23, 1939, from the Commissioner of Reclamation, submitting a report on the Kings River project of California, contemplating an expenditure of \$22,300,000 for the Pine Flat Reservoir on Kings River with a capacity of 1,000,000 acre-feet and a power plant, to provide supplemental irrigation water, flood control, and a power supply for an area of about 800,000 acres of developed lands around Fresno, Calif., together with minor river-control works. Through consultation and agreement with the Chief of Engineers, representing the Secretary of War, \$9,950,000 of this cost has been allocated to flood control, with no reimbursement contemplated. To irrigation there would be allocated \$9,750,000 to be repaid under the reclamation law in 40 years without interest. A power investment of \$2,600,000 would be repaid in 40 years with interest at 3½ percent, from power sales.

The proposed allocation of costs is proper and equals the esti-

mated cost of the project. The repayment of reimbursable costs can be anticipated with assurance. I find the project desirable, economically and engineeringly feasible, and authorized for construction under the provisions of section 9 of the Reclamation Act of 1939. I therefore recommend its construction thereunder, if and when funds are made available.

Unless you have objections thereto, the letter and report will be transmitted to the Congress, in accordance with the provisions of that law.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
*Washington, February 10, 1940.*

The Honorable, The SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: I have your letter of January 24 which was your finding with respect to the Kings River project in California and with which you submitted the Reclamation report on the project.

I am returning your letter and its enclosures. You may transmit the report to the Congress.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

THE SECRETARY OF THE INTERIOR,  
*Washington, February 10, 1940.*

Hon. WILLIAM B. BANKHEAD,  
*Speaker of the House of Representatives.*

MY DEAR MR. SPEAKER: I am transmitting herewith the Reclamation report on the Kings River Project in California.

The letter of January 23, 1940, to me from Commissioner John C. Page, of the Bureau of Reclamation, states that, "The project

is desirable, and clearly meets all requirements of feasibility and authorization under section 9 of the Reclamation (Project) Act of 1939."

My letter to the President dated January 24, 1940, states that, "The proposed allocation of costs is proper and equals the estimated cost of the project. The repayment of reimbursable costs can be anticipated with assurance. I find the project desirable, economically and engineeringly feasible, and authorized for construction under the provisions of section 9 of the Reclamation (Project) Act of 1939. I therefore recommend its construction thereunder, if and when funds are made available."

These letters, together with a letter from the President approving transmittal of the report to the Congress, are attached and are a part of the report, the main body of which, separately bound, also is enclosed. These enclosures constitute the report, the findings, and the authorization contemplated in section 9 of the Reclamation Project Act of 1939 on the Kings River Project, California.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1947

[Extracts from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1947, and for other purposes. (Act July 1, 1946, 60 Stat. 348, 363—369, and 381, 385, 386, Public Law 478, 79th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1947, namely:

\* \* \* \* \*

### GENERAL FUND, CONSTRUCTION

For continuation of construction of the following projects in not to exceed the following amounts to be immediately available, to remain available until expended for carrying out projects (including the construction of transmission lines) previously or herein authorized by Congress, and to be reimbursable under the Reclamation law:

\* \* \* \* \*

Kings River project, California, \$100,000.

# KLAMATH PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Los Angeles, California, May 1, 1905.*

CHIEF ENGINEER,  
*U. S. Geological Survey, Washington, D. C.*

DEAR SIR: Your Board of Consulting Engineers appointed for the Klamath Project has fully reviewed the plans and estimates submitted by the Project Engineer, detailed and revised reports of which are transmitted herewith, and begs leave to report as follows:

The total irrigable area under the Klamath Project is 236,401 acres net, divided as follows:

	<i>Acres</i>
Public lands, 45%.....	106,929
Private lands, 55%.....	129,472
Total .....	<u>236,401</u>

Of this area 90,000 acres, or 38%, are in California, and 146,401 acres, or 62%, are in Oregon. We believe the charges for this project should be proportioned on this ratio between these states.

Physical reasons exist for the apportionment of cost against this project. The upper valleys in the project will necessarily be under a reservoir system. The province of these reservoirs will be both that of supplying irrigation water to these valleys and also to prevent storm waters passing into Tule Lake, which lake it is proposed to drain. The upper valley lands, in our judgment, should pay 50% of the cost of these storage works, the balance of the cost of storage to be assessed against the lake beds.

Klamath Basin proper will be irrigated from the Upper Klamath Lake and can naturally be more economically irrigated than other portions of the project. We believe that these lands should be given the benefit therefor.

The Tule Lake bed is a sink or depression, from which it is proposed to cut off the water supply, thus permitting of the partial drying up of the lake by evaporation. These lands, therefore, receive a double service, for which it is considered proper they

should adequately pay. For this reason, 50% of the charges for the construction of the storage works above referred to have been made against the lake bed lands. As the lands in the bed of this lake are all public, new settlers can afford to pay a higher water rate thereon than they could do for private lands, which first must be purchased and in addition the water right paid for. We therefore have classified these charges as follows:

	<i>Acres</i>			
Upper Valleys .....	48,356	@	\$19.60	\$947,776
Klamath Basin .....	140,797	@	17.09	2,406,043
Tule Lake Bed .....	47,248	@	22.03	1,040,492
Total .....	236,401		18.59	4,394,311

This provides for a system of irrigation and drainage canals for the entire area. Water supply is ample. The lands are fertile and require irrigation, the climatic conditions permit of growing staple crops. Maps of the project have previously been sent to the Chief Engineer.

The people are anxious to obtain irrigation under the provisions of the Reclamation Act. The State of Oregon is the greatest contributor to the Reclamation Fund, and the State of California is fifth on the list.

Private water rights have been carefully considered by the Engineers. Options have been obtained and submitted with a preliminary report under date April 14th, 1905, on the Klamath Falls Irrigation Co. and on the Little Klamath Water Distribution Co. These canals have been using water for irrigation for over fifteen years. We have also a tentative agreement with the owners of the Carr Ranch for the Clear Lake Reservoir Site, including water and riparian rights on Clear and Tule Lakes. These agreements have been approved by the Water Users' Association, and, as we understand, also by the Chief Engineer and the Secretary of the Interior. These are the main water rights involved by this project. These canals now irrigate 12,000 acres.

The Klamath Canal Co., organized May 18, 1904, has spent about \$100,000 on irrigation and construction works for the irrigation of 30,000 acres of land in the Klamath Basin. They propose diverting water from Upper Klamath Lake, but the Department of Justice has obtained a temporary injunction against them, as this will be an unauthorized interference with interstate navigable waters. The final hearing on this injunction will be held May 24th, 1905.

We have persistently tried to reach an agreement with this company, notwithstanding that we cannot use the works they have built. They ask \$200,000 for a sale of all their interests, and, in order to prevent delay and discord, we have offered to recommend the payment to them of \$150,000 for these rights. This offer the company has declined. We cannot consistently recommend further negotiations with them. We have, however, inserted a figure in our estimate of \$150,000 for any contingencies which may grow out of this situation.

This project is necessarily an inter-state or national problem, owing to the navigable inter-state character of the rivers and lakes involved. Both the States of Oregon and California, and the United States Congress, have passed the necessary legislation for the construction of this project, and the disposal of the irrigated lands. Our estimate provides for the preservation and maintenance of all essential navigation interests.

We therefore recommend that an allotment of funds sufficient for the construction of this project as outlined above should be made, and that the Supervising Engineer be instructed to prepare his plans and final estimates for the completion of the work; also that the land owners be informed that before construction can begin practically all private land owners must sign agreements with the Klamath Water Users' Association, which has been duly organized under the Laws of Oregon.

As surveys have not yet been made looking towards the irrigation of arid lands either in Shasta Valley or in Butte Valley, we cannot now make recommendations concerning this possible portion of the projects. The works so far considered, however, have been so planned as to permit of the expansion of the project to cover these areas, if in the future it is deemed desirable.

Yours very truly,

(Signed) GEO. Y. WISNER.  
W. H. SANDERS.  
JOSEPH JACOBS.  
T. H. HUMPHREYS.  
J. B. LIPPINCOTT.

MAY 10, 1905.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: With reference to the Klamath project in southern Oregon and northern California, a board of engineers consisting of Messrs. Geo. Y. Wisner, consulting engineer; W. H. Sanders, consulting engineer; Joseph Jacobs, consulting engineer; J. B. Lippincott, supervising engineer, and T. H. Humphreys, district engineer, has made a report dated May 1 upon the plans and estimates. This report in brief brings out the fact that the total irrigable area is as follows:

	<i>Acres</i>
Public lands, 45 per cent.....	106,929
Private lands, 55 per cent.....	129,472
Total .....	<u>236,407</u>

Of this area, 90,000 acres are in California and the remainder, or 62 per cent are in Oregon.

The estimated cost of the ultimate reclamation of this land is in round numbers \$4,400,000 or \$18.60 per acre. The lands are of excellent quality and this cost is notably low.

There has already been approved by you conditionally, under date of April 28, 1905, three agreements for the purchase of private rights which form the key to the situation. All future action depends upon the acquisition of these rights.

Suit has been entered to determine the rights of the Klamath Falls Canal Company, this being at the present time the chief obstacle to the project. A telegram recently received indicates that this company will, as a result of long negotiation, accept \$150,000 for the purchase of their rights except the unnecessary real estate. The board of engineers endorse the purchase from the Klamath Canal Company and have in their estimates included the amount of \$150,000 to cover this matter. With the Klamath Canal Company out of the way the field is clear and there appears to be no reason for further delaying the project.

The conditional approvals heretofore given to the three options under this project are not satisfactory to the parties and the conditions are such that immediate action must be taken to secure favorable terms.

#### FUNDS AVAILABLE

The State of Oregon has contributed to the Reclamation Fund up to June 30, 1904, \$4,158,583. By June 30, 1906 it is estimated that the funds will be \$6,000,000 and the estimated restricted fund for Oregon up to June 30, 1906 may be over \$3,000,000. In other words, this amount should be expended in Oregon under a strict construction of the law.

Of this amount \$2,250,000 has been provisionally allotted to the Malheur project, but this project is not making rapid progress and an indefinite time will elapse before this amount will be needed. The balance in the restricted fund, over \$760,000 without touching the unrestricted portion, will suffice to start work on the Klamath project.

In view of the large amount of money which has come in from Oregon, I think it would be wise to set aside \$4,400,000 for the Klamath project out of the funds which may be available in the future and at the present time to allot \$1,000,000 definitely from the funds now in hand.

#### RECOMMENDATIONS

(1) It is respectfully recommended that purchase of all necessary rights be concluded with the Klamath Falls Company at not to exceed \$150,000.

(2) That the options now heretofore considered and conditionally approved by the Department be now definitely approved subject to the usual condition of furnishing good title and that



this office be authorized to advise the said parties that the rights and property in question will be purchased at the prices stated under the conditions of the options heretofore conditionally approved, upon the showing of good title and compliance with the usual conditions of purchase, namely, the Klamath Falls Irrigation Co., and The Little Klamath Water Ditch Co., furthermore, that an agreement in due form for the purchase from S. L. Akins of the property of the Jesse D. Carr Land and Live Stock Co., as heretofore specified at the price heretofore stated will be approved when presented.

Very respectfully,

(Signed) C. D. WALCOTT,  
*Director.*

UNITED STATES GEOLOGICAL SURVEY,  
*Washington, May 12, 1905.*

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: I have the honor to submit the following as additional to my letter of the 10th instant in regard to the Klamath Project, Oregon.

The Board of Engineers has reported favorably on the project and I concur in its recommendation.

In said letter the suggestion was made that it would be wise to set aside \$4,400,000 for the Klamath Project out of the funds which may be available in the future and at the present time to allot \$1,000,000 definitely from the funds now in hand.

I desire now to make a recommendation to that effect, namely, that \$4,400,000 be set aside for the Klamath Project out of the funds which may be available in the future, and at the present time the sum of \$1,000,000 be allotted from the funds now in hand, with a view to the purchase of the property which is the subject of options heretofore submitted for your consideration and for taking up and constructing an integral portion of the project which in the terms of Section 4 of the Reclamation act it may be practicable to construct and complete as a part of the whole project, the specific portion of the work to be taken up being left for future report by the Board of Engineers.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, May 15, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In letters of the 10th and 12th instant, to the Department, you presented the matter of the proposed Klamath Project, in southern Oregon and northern California, under the act of June 17, 1902, 32 Stat. 388, reported on to you on the 1st instant by a Board of Engineers of the Reclamation Service.

This correspondence includes statements in detail relating to the conditions affecting the project and the action essential on the part of the United States to the ultimate completion of the project if adopted.

I learn therefrom that the total irrigable area under this project embraces 236,401 acres of which 45 percent, or 106,929 acres, are public lands and 55 percent, or 129,472 acres, are private lands, and that 90,000 acres are in California and the remainder, or 62 percent, are in Oregon.

It appears that the estimated cost of the reclamation of the lands is, in round numbers, \$4,400,000, or \$18.60 per acre, the lands being reported to be of excellent quality and the cost of reclamation being, in your opinion, notably low.

You have stated that the Board of Engineers has reported favorably on the project and have advised me that you concur in its recommendation and have further recommended that \$4,400,000.00 be set aside for the project from the funds which may be available in the future and that there be now apportioned from the funds in hand the sum of \$1,000,000, with a view to the purchase of the property now the subject of options and for entering on and constructing an integral part of the project as authorized by section 4 of the act.

You have referred to the conditional approval in Departmental letters to you, on the 28th ultimo, of agreements to purchase certain private rights which it is necessary to acquire, and have asked authority to advise the parties, viz: the Klamath Falls Irrigation Company and the Little Klamath Water Ditch Company that the rights and property in question will be purchased at the prices stated under the conditions of the options heretofore conditionally approved on the showing of good title and compliance with the usual conditions of purchase; also that an agreement in due form for the purchase from S. L. Akins of the property of the Jesse D. Carr Land and Live Stock Company as heretofore specified at the price heretofore stated when presented will be approved.

With respect to the property of the Klamath Canal Company you have submitted a copy of a further report of the Board of Engineers, dated the 5th instant, together with a copy of a memorandum of agreement proposed to be entered into with the company for the acquisition by the United States of water rights, canals, rights of way, tunnel route, etc., necessary in

carrying out the project, and have recommended that the memorandum be approved.

The Board has recommended that an option be agreed to for the purchase of the rights and interests of this company for \$150,000.

I have considered your several letters and recommendations and in accordance therewith I hereby, on the condition hereafter stated, adopt the Klamath Project and authorize you to cause the construction thereof to be entered on under the act; I also, on the same condition, set aside for the construction of the project from funds that may become available in the future the sum of \$4,400,000 and hereby apportion the sum of \$1,000,000 as a part of the cost of construction, from the fund provided by the act now in hand; I also, on the same condition, authorize you to advise the Klamath Falls Irrigation Company in accordance with your recommendation, and inform you that an agreement with S. L. Akins will be approved when presented, subject to the conditions covered by your recommendations.

The memorandum of the Board covering the rights and property of the Klamath Canal Company is also hereby approved as you have recommended.

The condition on which the foregoing Departmental action hinges is the acquirement by the United States of the rights and property of the Klamath Canal Company, as per memorandum submitted by the Board.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# LAWTON PROJECT

NOVEMBER 20, 1913.

The SECRETARY OF THE INTERIOR.

SIR: In accordance with your direction at Tahoe, California, Mr. R. F. Walter, supervising engineer, visited the City of Lawton, Oklahoma, and examined the irrigation project in that vicinity. Mr. Walter has made report upon this project, copy of which is herewith transmitted.

There is less than one complete year of measurement of the water supply available for this project, but it happens that the period covered is one of just about normal rainfall and should indicate approximately an average water supply.

During the year observed there was just about enough water for the town of Lawton and Fort Sill Indian Reservation, and to compensate for evaporation on the surface of the reservoir, which is necessary to regulate the flow for this use.

Unless the year observed is very misleading, there would be practically no water supply for irrigation in any normal year or any year below normal in runoff.

Attention is called particularly to paragraph 21 of Mr. Walter's letter, where he mentions two possibilities of failure on this project:

1. That immediately after its construction there should come a series of wet years, and, therefore, the farmers will fail to build a lateral system or to use the water and the project will go into disuse.

2. That immediately after the construction of the project there should come a series of dry years and as the present water supply indicates a shortage of water and not enough flow into Medicine Bluff Creek to supply the city and the irrigation project, and the Reclamation Service would, therefore, be blamed for having taken up the project where there was a shortage of water, besides being unable to collect the money expended.

On the basis of the present records, it appears that the water supply available for this project would be practically nil in years when it was needed and in such years as might furnish a surplus water supply that could be used for irrigation, the rainfall would

be so heavy that irrigation water would not be needed and would not be used.

There is a possibility, however, that the year of record may be very abnormal in the relation of runoff and rainfall. This suggests the only remaining chance of working out a successful project here.

If the runoff for the past year in an abnormally small percentage of the rainfall as claimed locally, this fact should be developed by continuing the observations of stream flow for two or three more years, and it seems wise to do this before entirely abandoning the project.

#### RECOMMENDATION

It is respectfully recommended that the construction of this project be for the present suspended owing to lack of adequate water supply, and that the observations of runoff be continued for another year, to be used as a basis for reconsidering the whole question at the end of 1914.

Respectfully,

(Signed) A. P. DAVIS,  
*Acting Director.*

Recommendation approved.

JULY 31, 1914.

The SECRETARY OF THE INTERIOR.

SIR: With reference to the Lawton, Oklahoma, project, it appears that the conferees on the Indian appropriation bill have agreed upon the following amendment:

That the Secretary of the Interior be, and he is hereby authorized to contract for water rights for the irrigation of not to exceed 600 acres of land in the Fort Sill Indian School Reservation in the State of Oklahoma, within the proposed Lawton reclamation project, for the irrigation of not to exceed 2,500 acres of Indian and private lands, upon the same terms and conditions as those prescribed for the acquisition of water rights for other lands to be irrigated by said project: *Provided*, That operation and maintenance charges shall not be assessed against said Indian land prior to the completion of the lateral system so as to provide for actual delivery of water thereto, and the project shall include lateral construction for the Indian lands down to each legal subdivision thereof equal in area to the size of the farm unit for lands in private ownership, within said project.

This action seems to remove one of the obstacles to further progress. The Commission desires to call to your attention the present conditions and make certain recommendations.

**Public Land:** On December 27, 1913, you dictated the following memorandum:

We will enter upon the project provided a method is worked out satisfactory to the Commission by which a large body of public land is brought into the project, the amount to be left to the Commission and provided also that the owners of private lands agree to the fixing of the units in accordance with the decision of the Commission, both of these things to be done prior to the order for the construction of the work.

The Commission took up this matter of public land and ascertained from the Indian Service that there are no public lands available but that there are certain Indian school lands which may be irrigated. As an outcome of this matter, the item above noted was inserted in the Indian Appropriation bill, but without the knowledge of the Commission, materially modifying the plans discussed and compelling a radical change in policy in that, instead of making available any public lands, it resulted in the Reclamation Fund being utilized for irrigation of lands for the use of the Indian school.

However, as Congress has taken the matter out of our hands, it is presumable that the Commission must modify its plans accordingly.

**Signing Up:** The second condition to be met in carrying out this project is the signing up by the landowners of a compact area of approximately 1,900 acres which with the 600 acres of Indian school land will aggregate 2,500 acres. This is in accordance with the spirit of the resolution of the Reclamation Commission of December 23, 1913, as follows:

*Resolved,* That this Commission recommends to the Secretary of the Interior the approval of the construction of the proposed system for irrigating about 2,500 acres of land near the City of Lawton, Oklahoma, on condition that the owners of a sufficiently compact area enter into proper contracts for disposing in tracts averaging about ten acres of all in excess of 40 acres in each township and return the cost of construction under the terms of the Reclamation Act.

So far as appears from the record, the owners of this land have not as yet indicated the exact areas which they are willing to mortgage for this construction, but it is understood that this can be readily accomplished.

**Restriction of Ownership:** In the above resolution of December 23, it is to be noted that one of the conditions imposed is a restriction of the present landowners to 40 irrigable acres. Nothing has occurred to modify this action.

**Ten-acre Tract:** It is also to be noted that it is the opinion of the Commission as proposed and agreed by the landowners that all excess land should be sold in 10-acre tracts, the reason being that it is believed that success can be attained if the land ownership is in such small tracts that it will be necessary to intensively cultivate the soil, which, of course, involves the irrigation of it. Unless the ownership is thus restricted, there is doubt as to

whether such intensive cultivation will follow, as there is always danger of return to dry farming under these climatic conditions.

**Water Users Association:** Articles of incorporation of a water users association were submitted for consideration of this office and on September 24, 1913, returned with suggestion that no further steps be taken until the Department determined definitely that the project would be undertaken.

**Donation of Reservoir:** Contract executed in behalf of the City of Lawton conveying to the United States reservoir rights in connection with the Lawton project was transmitted to the Department on June 1, 1914, but returned to this office to be held awaiting Congressional action on the Indian bill. The legal questions as to the power of the City to do so and the effect of the bonded indebtedness of the city upon the donation of these reservoir rights, it is understood, have been considered by Judge King but the contract has not been submitted for Departmental approval pending action on the Indian bill. Judge King is expected back about August 10, 1914, when this matter will be considered by him and the contract submitted for Departmental consideration.

**Building Distributing System:** One of the conditions attached is that if the Government builds the main line canal to the irrigable lands, the owners thereof shall build the distributing system according to plans developed by the Reclamation Service but at their own expense. This is believed to be a desirable requirement as the work can be done most economically by the landowners, using their own teams.

In the item in the Indian appropriation bill above referred to it is provided that—

the project shall include lateral construction for the Indian lands down to each legal subdivision thereof equal in area to the size of the farm unit for lands in private ownership.

No appropriation is made for constructing such lateral system. Presumably funds provided for such general purposes are available for the Indian Service to be utilized in building the distributing system; in this case the Indian Service will occupy the same position as owners of private lands.

**Rights of Way:** Right of way must be acquired across Fort Sill Military Reservation and also by donation across private lands. As yet the definite location of needed rights of way has not been made because this is dependent upon the position and area of the lands to be served. As soon as maps can be prepared, it will be necessary to have conveyance of this necessary right of way.

#### FURTHER ACTION

The steps now to be taken are as follows:

1. Indication by private landowners of the areas which they are willing to subscribe.
2. Selection of these areas in as compact a body as possible and

with reference to the character of the soil, and its adaptability to irrigation.

3. Execution of agreements with relation to the particular tracts, providing for subdivision and sale of these.

4. Mapping of the rights of way. Before any considerable expenditures are made all rights of way should be acquired and all contracts which may be necessary with the city or the bondholders and the landowners, should be executed.

5. Donation of these rights of way.

6. Execution of contract between the water users association and the Secretary of the Interior.

7. Completion of contract with the city regarding use of the reservoir and with the bondholders, if necessary

8. Completion and recording of all contracts or agreements.

9. Preparation of plans and specifications for the main canal.

10. Advertising and contracting for this work.

11. Completion of plans for laterals for distributing system.

12. Agreement with the landowners to build these within specified time.

#### RECOMMENDATION

In order to carry out the above program, it is recommended that the Commission be authorized to take up the work in about the above named order, utilizing for this purpose the sum of not to exceed \$100,000, estimated for in communications of January 29, 1914.

For the Commission,

(Signed) F. H. NEWELL,  
*Director.*

Recommendation approved August 3, 1914.

(Signed) FRANKLIN K. LANE.

OFFICE OF THE SECRETARY,  
*Washington, October 7, 1914.*

THE PRESIDENT,  
*The White House.*

SIR: I have determined that it is practicable and advisable to construct irrigation works in the vicinity of Lawton, Oklahoma, to water about 2,500 acres of semi-arid land at a cost of \$100,000.



including main canals and laterals to each legal subdivision of land included therein.

It is recommended that the irrigation project shall be begun and that you shall, by direct order, approve the same.

Respectfully,

(Signed) FRANKLIN K. LANE.

The SECRETARY OF THE INTERIOR.

SIR: It is ordered that your recommendation that an irrigation project shall be begun in the vicinity of Lawton, Oklahoma, shall be, and the same is, hereby approved.

(Signed) WOODROW WILSON.

OCTOBER 8, 1914.

# LEWISTON ORCHARDS PROJECT

BUREAU OF RECLAMATION, REGION I,  
*Boise, Idaho, December 3, 1945.*

From: Regional Director, Region I, Boise, Idaho  
To: The Commissioner, Bureau of Reclamation  
Subject: Lewiston Orchards Project, Idaho.

1. *Transmittal.*—Herein is presented my report describing the contemplated development of the Lewiston Orchards project, Idaho. Additional supporting materials are presented in the appendix report on this project which is being transmitted separately. For urgent reasons developed below, I recommend that you present the report for appropriate departmental action with a view to securing congressional authorization for immediate construction of the project.

\* \* \* \* \*

38. *Conclusions.*—Urgent need for the project exists to preserve improvement values in the Lewiston Orchards irrigation district, totaling nearly \$2,000,000; to permit continuance of crop production which at normal prices has a value exceeding a quarter of a million dollars annually; and to provide a healthful supply of water for nearly 3,000 people. The project will have numerous other benefits, including a substantial increase in the annual value of crops produced, the creation of new opportunities for part-time farming, and the preservation and increase of wealth contributing to the support of local business, the county, and the State. The plan presented herein has engineering feasibility and full payment of reimbursable costs of the project is in prospect.

39. *Recommendations.*—It is recommended:

(a) That the following principal works and such subsidiary works as may be incidental thereto, which, together with existing works of the Lewiston Orchards Irrigation District not requiring reconstruction, constitute the Lewiston Orchards Project, be authorized to be constructed by the Bureau of Reclamation substantially in accordance with the plans set forth in this report and in the supporting Appendix Report on the Lewiston Orchards Project, with such modifications, omissions, or addi-

tions as you may find proper for carrying out the project to the end of providing irrigation and domestic water to the 3,430 acres now served by the Lewiston Orchards Irrigation District and of providing capacity in mains to permit eventual extension of irrigation and domestic water service by the district to the 348 acres of the project area adjoining the district lands on the northwest, to wit:

(1) Concrete bench flume to replace wooden flumes on Sweetwater Creek diversion canal,

(2) Concrete pipe siphon on Sweetwater Creek diversion canal to replace chute and siphon of inadequate capacity,

(3) Earth and rock-fill diversion dam on Webb Creek to replace timber crib structure,

(4) Steel pipe to replace wooden flumes on Webb Creek diversion canal,

(5) Steel pipe irrigation distribution system to serve 3,430 acres in Lewiston Orchards Irrigation District, with mains of adequate capacity to permit the eventual extension of service by the district to the 348 acres of the project area adjoining the district on the northwest.

(6) Transit pipe, domestic water distribution system to serve the same area, also with mains of adequate capacity to permit extension of service by the district to the adjoining acreage described, and

(7) Treating plant and clear water reservoir for domestic water system.

(b) That said Lewiston Orchards Project be authorized to be constructed, operated, and maintained in accordance with the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto): *Provided*,

(1) That this report shall be deemed to satisfy the requirements of the Federal Reclamation Laws governing the submission to the President and the Congress of a finding of engineering feasibility;

(2) That water users shall be required to pay not more than the estimated maximum repayable amount of \$870,000 of the actual construction costs finally to be allocated to irrigation, such repayment to be made in the maximum repayment period and on the terms and conditions available under the provisions of subsection 9 (d) of the Reclamation Project Act of 1939;

(3) That water users shall be required to pay not more than the estimated maximum repayable amount of \$540,000 of the actual construction costs finally to be allocated to domestic water, such repayment to be made in the maximum repayment period and in the terms and conditions available under the provisions of 9 (c) of the Reclamation Project Act of 1939;

(4) That the excess, if any, of actual construction costs finally allocated to irrigation and domestic water over the sums stated in (2) and (3) above, respectively, be nonreimbursable; and

(5) That the costs allocated to the irrigation system consist of the construction costs for the irrigation distribution system, 94 percent of the construction costs for works above the distribution system, and that part of the \$30,000 investigation cost determined by use of the ratio between construction costs for the irrigation system and total construction costs; and that costs allocated to the domestic water system consist of the construction costs of the domestic water distribution system and treating plant, six percent of the construction costs for works above the treating plant and distribution system, and the balance of the \$30,000 investigation cost not allocated to the irrigation system.

(c) That, inasmuch as the domestic water system is an essential accompaniment to the irrigation system and would utilize the same water supply, reimbursable funds used for construction of the treating plant, clear water reservoir, and distribution system for domestic water shall not carry reimbursable interest charges.

(d) That the Lewiston Orchards Irrigation District or other water users' organization or organizations having adequate authority under the laws of Idaho to contract with the United States for the operation and maintenance of the project works and for the repayment of construction costs on the terms indicated in this report be recognized as the appropriate representative of the project water users.

(e) That the contract between the United States and the district provide, among other things, substantially as follows:

(1) That annual charges for irrigation levied against each benefited owner of land within the district, including charges both for repayment of construction costs and for operation and maintenance of the project, be determined on the basis of two components: a uniform charge per acre, and a service charge for each operating unit; and that the total charges thus determined be as nearly proportional as practicable to the maximum repayment ability of operators of representative sized units established in this report; and

(2) That the district, subject to approval by the Government, may extend the irrigation and domestic water systems constructed by the United States to provide service on the 348 acres of the project area adjacent to the present district lands on the northwest at such time and under such terms as may be mutually agreed upon by the district and the owners of land in that adjacent area.

(Signed) R. J. NEWELL,  
*Regional Director.*

BUREAU OF RECLAMATION,  
*Washington, February 28, 1946.*

The SECRETARY OF THE INTERIOR.

SIR: I submit herewith my report on the Lewiston Orchards project, Idaho. The proposed project involves the reconstruction of a large part of the present water system serving the domestic and irrigation needs of the Lewiston Orchards irrigation district and the construction of needed additions to that system. The present water system of the district is seriously deteriorated and requires immediate reconstruction to meet the irrigation needs of the district and to assure and safeguard the public health. The project will furnish water to 3,430 acres of land already irrigated in the district. Frequent breakdowns have reduced water supplies during appreciable periods of time as much as 85 percent, and the entire supply is constantly threatened by failure of the deteriorated facilities. It will also ultimately serve an additional 348 acres of new land and supply safe domestic water to about 4,000 persons. In July 1945 the 2,939 people in the project area were obtaining their domestic water supply from the present water system. The Idaho Department of Public Health has classified the water as unsatisfactory for domestic use, and many of the residents have made it their practice to haul drinking water from other sources.

The project has engineering feasibility and is economically sound. It has a favorable ratio of direct benefits to costs of 5.7 to 1, based upon 1940 costs estimated at \$997,000. Although the project would be feasible on the basis of 1940 costs, the rising costs since that date make it desirable to submit the report to the Congress for special authorization under section 9 (a) of the Reclamation Project Act of 1939. Even under present costs, which are about 47 percent higher than in 1940, there is a favorable ratio of benefits to costs of 3.9 to 1.

I recommend that the Lewiston Orchards project, as described in the attached report be authorized to be constructed, operated, and maintained by the Bureau of Reclamation substantially in accordance with plans set forth in the attached report of the regional director dated December 1945, with such modification as the Commissioner of Reclamation, with your approval, may find proper.

I recommend that you adopt this report as your proposed report on the Lewiston Orchards project and that you authorize me in your behalf to transmit copies of this letter and of the attached proposed report to the affected State of Idaho and to the Secretary of War in accordance with the requirements of Section 1 of the Flood Control Act of 1944.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved March 5, 1946.

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

BUREAU OF RECLAMATION,  
*Washington, May 24, 1946.*

The SECRETARY OF THE INTERIOR.

SIR: I transmit herewith my report on the Lewiston Orchards project, Idaho.

The project includes the reconstruction of a domestic and irrigation water system now inadequately serving the Lewiston Orchards irrigation district, and the construction of certain needed additions to that system. Water would be furnished to 3,430 acres of land in the district, and, ultimately, an additional 348 acres of new land would be served. Domestic water would be provided for 4,000 persons.

On March 5, 1946, the Acting Secretary of the Interior approved the plan set forth in my letter of February 28, 1946, and adopted that document as the Secretary's proposed report. Copies of the proposed report were duly transmitted to the Secretary of War, and to the Governor of Idaho, pursuant to the requirements of section 1 of the Flood Control Act of 1944 (58 Stat. 887). Copies were sent also to the Federal Power Commission, the Corps of Engineers, and the Department of Agriculture. The written views of each have been received and are attached to the report and accompanying papers.

The Assistant Secretary of the Department of Agriculture, commenting on the report, raised questions concerning the engineering and agricultural phases of the project. First, he believes that a farm delivery of 2.2 acre-feet per acre per year would be restrictive to the cropping systems on the project, and that at least 3 acre-feet per acre is desirable. On the other hand, I reiterate that the farm delivery, summarized in the report, is based on reliable methods of estimating consumptive uses plus a liberal allowance for waste and seepage. Furthermore, it is somewhat in excess of what long-time irrigators in the project area believe adequate for satisfactory irrigation. The 2.2 acre-feet per acre, which is twice the metered delivery, is, in our opinion, adequate. Second, he raises the question whether reservoir sedimentation has been taken into account in our water-supply studies. Such sedimentation has been taken into account, and our water-supply studies show that additional storage will not be needed, because of the savings in water losses expected from the reconstructed system. Third, he mentions that repayment calculations are based on 3,430 acres, the area of the district, and not on the 3,360 acres which are irrigable. This was considered in some detail, and it was concluded that exclusion of the small area of nonirrigable land in this instance would be impracticable and would create real hardship, for the small acreage of nonirrigable land is interspersed among the irrigable lands of the highly developed units. These units have paid-up water rights. For this reason, nondelivery of water to the small tracts of nonirrigable land would be difficult to achieve.

I recommend that the project be authorized for construction as set forth in the attached report. If you concur in my recommendations, please so indicate by signing the attached letter to the President.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, May 31, 1946.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: Attached is my report on the Lewiston Orchards project, Idaho. I transmit it to you pursuant to section 9(a) of the Reclamation Project Act of 1939 (53 Stat. 1187).

The Commissioner of Reclamation proposes to reconstruct a seriously deteriorated domestic and irrigation water system now inadequately serving the Lewiston Orchards irrigation district near Lewiston, Idaho, and to construct certain needed additions to that system. I concur in the recommendations of the Commissioner, as I find that the plan is feasible from an engineering standpoint, that it is economically justified, and that repayment of most of the costs may be anticipated.

The plan for the project has been prepared under the sponsorship of the Bureau of Reclamation, and has been reviewed by the several agencies of the Department of the Interior. The report has been reviewed by the affected State of Idaho and by the Secretary of War, in accordance with the requirements of section 1(c) of the Flood Control Act of December 22, 1944 (58 Stat. 887). Their written views are attached.

I shall appreciate having your advice concerning the relation of this proposed project to your program before I transmit the report to the Congress for its consideration and appropriate action in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
Washington, July 9, 1946.

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge receipt of your letter dated May 31, 1946, addressed to the President submitting the proposed report on the Lewiston Orchards project, Idaho, and the draft of covering letter to the Speaker of the House of Representatives subsequently submitted.<sup>1</sup> While it is noted that the cost benefit ratio is determined by the questionable method of comparing gross returns with net cost, I am authorized by the Director of the Bureau of the Budget to advise you that there would be no objection to the submission of the report to Congress.

Sincerely yours,

(Signed) L. C. MARTIN,  
*Assistant Director, Estimates.*

## LEWISTON ORCHARDS PROJECT AUTHORIZED

An act to authorize the Secretary of the Interior to construct the Lewiston Orchards project, Idaho, in accordance with the Federal reclamation laws. (Act July 31, 1946, 60 Stat. 717-718, Public Law 569, 79th Cong., 2d sess.)

\* \* \* That for the purposes of irrigating lands and for purposes incidental thereto, there is hereby authorized to be constructed, operated, and maintained the Lewiston Orchards project, Idaho, substantially in accordance with the recommendations of the regional director of the Bureau of Reclamation, region numbered I, in his report dated December 3, 1945, as concurred in by the Commissioner of Reclamation and the Secretary of the Interior: *Provided*, That, notwithstanding any recommendations to the contrary contained in said report, all costs of said project allocated to irrigation and all costs of said project allocated to municipal water supply shall be reimbursable under the Federal reclamation laws but within repayment periods to be fixed by the Secretary of the Interior and not to exceed fifty years.

SEC. 2. There are hereby authorized to be appropriated out of

<sup>1</sup>This letter was to have accompanied a copy of the report to the Speaker of the House, advising him that the report was being submitted for consideration by the Congress. It was not sent to him because no occasion for sending it arose. The Congress took action before the report was officially submitted.



any moneys in the Treasury not otherwise appropriated, such sums as may be required for the purposes of this Act.

UNITED STATES DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION,  
*Washington 25, D. C., September 26, 1947.*

*Memorandum*

To: Secretary J. A. Krug  
From: Commissioner  
Subject: Changes in description of features—Lewiston Orchards Project.

In connection with the Lewiston Orchards Project, Idaho, the Construction Engineer has undertaken the detailed review of the project features as the first necessary step toward the commencement of construction. The result of this review makes it appear desirable to alter in some respects the description of the principal features as they appear in the Regional Director's report of December 3, 1945, which is the basic authorizing document (Senate Document No. 247, 79th Congress, 2d Session), and in the repayment contract which was executed on behalf of the United States on September 10, 1947.

The repayment contract and the basic authorizing document provide for modifications in design or location of works or the elimination or addition of works where this is found necessary or desirable by the Secretary, the limitation being only that the changes must be in keeping with the principal objective for which the project was authorized. The changes proposed by the Construction Engineer are these:

1. The construction of diversion works and related sand trap and headworks on the Sweetwater diversion canal. The authorizing document describes only the concrete bench flume on Sweetwater Creek. It became evident, however, in the course of negotiations on the contract that the existing headworks and the sand trap and related diversion works were in need of early replacement. Accordingly, the contract was framed so as to cover the replacement of the concrete bench flume, headworks, and sand trap. The diversion works were not expressly mentioned, though they are in actual fact but a part of the headworks and sand trap.
2. The use of 30-inch precast concrete pipe to replace the present Webb Creek diversion flume. The authorizing document provided for the use of steel pipe.
3. The use of precast concrete pipe from Reservoir "A" to the filtration plant. The original plan called for the use of steel pipe.

All the changes suggested by the Construction Engineer have the approval of the Chief Engineer and the Regional Director.

The District's board of directors has also considered and approved the changes. It is my conclusion that the changes are desirable and that the making of the changes is permissible under the provisions of the authorizing document and the repayment contract.

It is possible that as construction proceeds other modifications of a similar character will be found desirable. So long as these changes will not result in increasing the then official estimate of project cost, and so long as the changes may properly be made under the provisions of the authorizing document and the repayment contract, I believe that it will be of advantage to have delegated to the Regional Director authority to approve the changes. I recommend that you approve the changes above described and that you delegate to the Regional Director authority to approve future changes within the limitations herein stated.

For your information there are attached copies of the Construction Engineer's letter of August 5 to the District, the District's reply of August 7, and the Chief Engineer's letter of September 3. These should be returned to our files when action has been taken on this matter.

(Signed) MICHAEL W. STRAUS.

Approved September 29, 1947.

(Signed) WILLIAM E. WARNE,  
*Assistant Secretary of the Interior.*

# LOWER YELLOWSTONE PROJECT

## (FORT BUFORD)

BILLINGS, MONTANA, *April 23, 1904.*

Mr. F. H. NEWELL,  
*Chief Engineer, U. S. G. S.*

SIR: We have examined the project above Ft. Buford on Yellowstone River, and have to report as follows:

The project as surveyed contemplates the diversion of Yellowstone River about two miles above Glendive, and the construction of about 82 miles of canal to cover a large tract of fine land lying along the lower Yellowstone in Montana and North Dakota.

The first twenty miles of this line is mostly heavy work, and we are of the opinion that the cost of the project would exceed \$30 per acre, a price which we consider as the maximum at which the land would readily settle, under the provisions of the reclamation act.

It appears, however, that a lower line, diverting about 20 miles further east and covering less acreage, could be constructed at a less cost per acre, and would bring the price within a figure that could readily be obtained, and would cover as much land in North Dakota as the higher line. The existing surveys show elevations by which the position of the lower line can be approximated at any point, and we are of the opinion that at least 40,000 acres of good land can be irrigated by the system suggested, and that its cost will not much exceed twenty-five dollars per acre. We have, accordingly directed Mr. F. E. Weymouth to at once inaugurate surveys for the lower line, by which more definite figures can be made available early in June.

The minimum flow of the Yellowstone River is far in excess of the water supply required by this project.

The lands are excellent, and about one-third are vacant public land, one third are in possession of the Northern Pacific Railroad Company, and one-third are in private ownership. The private owners have indicated with practical unanimity their desire to purchase water rights from the government at twenty-five to thirty dollars per acre.

We recommend that the proper officials of the Northern Pacific Railroad Company be requested to enter into an agreement to

subdivide the company lands which lie under the proposed canal into tracts not exceeding 160 acres, and to place upon them a nominal price that will insure the disposal in separate holdings of such tracts. Without such a definite binding agreement, we do not consider the project feasible.

After this agreement is secured, we recommend that the Honorable, the Secretary of the Interior be requested to give his preliminary approval of the project, and that the sum of \$1,200,000 be set aside in the Reclamation fund for its construction.

Respectfully submitted.

(Signed) A. P. DAVIS,  
J. H. QUINTON,  
B. M. HALL,  
*Consulting Board.*

MAY 7, 1904.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Under the terms of the reclamation act of June 17, 1902, and instructions from you, surveys have been made in North Dakota and adjacent portions of Montana.

The only feasible project yet discovered in North Dakota is that which involves the reclamation of land in the extreme western part of the State between the Missouri and Yellowstone Rivers. To reach this land water must be diverted from the left bank of Yellowstone River in the State of Montana, and carried along the banks of the stream, irrigating a strip of land in Montana, and the flats in North Dakota.

The diversion from Yellowstone River will be very expensive, but the surveys made show that lands can be reclaimed at a cost which will probably not exceed \$30 per acre. This cost is considered to be the maximum at which the lands can be readily settled under the provisions of the reclamation act.

A Board of Engineers, consisting of Messrs. A. P. Davis, J. H. Quinton and B. M. Hall have reported to the Chief Engineer, recommending that alternative details be considered, and that pending the completion of these, and of negotiations with the people concerned, a definite allotment to the project be made.

About one-third of the lands which may be irrigated are vacant, one-third are believed to be still owned by the Northern Pacific R.R. Co., and one-third in private ownership. The officials of the N. P. R. R. Co. have expressed informally their willingness to dispose of the land at a minimum price, in small tracts, to

actual settlers, under the terms of the reclamation law; the other private owners have indicated their desire to purchase water rights at \$25 to \$30 per acre. These details should be satisfactorily arranged before construction is begun, but it is believed that suitable arrangements can be made.

In view of the present situation, I respectfully recommend that the sum of \$1,200,000 be set aside in the reclamation fund for the construction of the Ft. Buford project, if satisfactory arrangement can be made with the owners of lands and water rights, and the details now in the hands of the engineers be properly concluded.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, May 10, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: I have before me your letter of the 7th inst. in which you informed me that, under the act of June 17, 1902—32 Statutes, 388—surveys have been made in North Dakota and adjacent portions of Montana, that the only feasible project yet discovered is that involving the reclamation of land in the extreme Western part of the State between the Missouri and Yellowstone Rivers, and that to reach the land, water must be diverted from the left banks of the Yellowstone River in Montana, and carried along the banks thereof, irrigating a strip of land in Montana and the flats in North Dakota.

It appears that the surveys show that the lands can be reclaimed at a cost of not to exceed \$30.00 per acre, which cost is considered to be the maximum at which the lands can be readily settled under the reclamation act.

You have reported that about one-third of the lands which may be irrigated are vacant, one-third in private ownership and one-third believed to be still owned by the Northern Pacific Railroad Company.

Your recommendation is that the sum of \$1,200,000 be set aside from the reclamation fund for the construction of the Fort Buford Project, if satisfactory arrangements can be made with the owners of land and water rights and the details now in the hands of the engineers can be properly concluded.

In compliance with your recommendation, I hereby set aside the sum of \$1,200,000 or so much thereof as may be necessary

from the sum provided by the Act mentioned, for use in the construction of the Fort Buford Project, subject to the conditions you have set forth.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# MALHEUR PROJECT<sup>1</sup>

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Pendleton, Oregon, March 25, 1904.*

MR. F. H. NEWELL,  
*Chief Engineer, U. S. G. S., Washington, D. C.*

SIR: We, the undersigned, have examined the surveys, plans and estimate exhibited by District Engineer, J. T. Whistler, relating to the Malheur Project. The project as now outlined contemplates storing the flood-waters of the Malheur River and its tributaries, and distributing them upon the adjacent lands.

So far as determined, the water supply and storage facilities, combined, appear adequate for the 75,000 acres of land which can be covered. It also appears feasible to conduct the water from the storage reservoir down the open stream channel to the lower end of the canyon, and then divert on both sides of the River, covering thereby the available land.

Neither of the canal lines on this lower plan have been located, but so far as determined, the project appears feasible, and we have directed continuous and further investigations along the following lines:

First. Make plane table surveys comprising the probable location of the two main canals and the irrigable lands.

Second. Diamond drill borings at dam site and spill way.

Third. A reconnaissance of the Owyhee basin for storage facilities, as this basin, to a large extent, commands the same lands as the Malheur and they, consequently, should be considered together.

We recommend that the Secretary of the Interior be requested to give his preliminary sanction to the Malheur Project, and to set aside \$2,000,000 for the construction thereof.

Respectfully submitted,

(Signed) A. P. DAVIS.  
GEO. Y. WISNER.  
H. N. SAVAGE.

<sup>1</sup> The *Malheur Project* was found feasible under the original Reclamation Act prior to its amendments, but later reclassified as a secondary project. The Board of Engineers Report of October 27, 1905, is combined with the report for the Umatilla Project.

MAY 7, 1904.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Surveys and examinations under the reclamation act have been conducted in Oregon and various localities under authority granted by you.

As a result of the examinations made along Malheur River it appears that 75,000 acres of irrigable land may be reclaimed at an estimated cost of less than \$30 per acre. The project has been examined by a board of engineers, consisting of Mr. A. P. Davis, George Y. Wisner, and H. N. Savage, and report has been made to the Chief Engineer. On the basis of this report, I respectfully recommend that the sum of \$2,000,000, or as much thereof as may be necessary, be set aside from the reclamation fund tentatively for the construction of the Malheur project, contingent upon a further detailed investigation yielding favorable results.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, May 11, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of the 7th instant to the Department you referred to surveys and examinations made under the Act of June 17, 1902,—32 Stat. 388—and informed me that as a result of the examinations along Malheur River, Oregon, it appears that 75,000 acres of irrigable land may be reclaimed at an estimated cost of less than \$30 per acre.

You have accordingly recommended on the basis of reports by a board of engineers, that the sum of \$2,000,000, or as much thereof as may be necessary, be set apart from the reclamation fund for the construction of the Malheur Project, contingent on a further detailed investigation yielding favorable results.

In compliance with your recommendation I hereby set aside the sum of \$2,000,000, or as much thereof as may be required, for the construction of the Malheur Project, from the fund provided by the Act mentioned.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*



FEBRUARY 3, 1906.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: In accordance with your request for a recommendation in relation to the Malheur Project in the State of Oregon, I have to report as follows:

There are now several obstacles to the development of a project from the Malheur River along the lines heretofore presented for your consideration. The principal among them are: failure to arrive at satisfactory agreement with the parties owning the lands which were granted on account of the Willamette and Cascade Mountain Military road, known as the Road Lands Company; interference of right of way granted to the Corvallis and Eastern Railroad Company, with reservoir construction; complex condition of private canals which must be included in the project; and the doubt in the minds of the settlers themselves as to their ability to pay the necessary charges for the project.

Most of these conditions are not likely to be removed in the near future and it is therefore recommended that no active work be done for the present on this project and that it be allowed to remain in status quo with the intention to utilize for the Klamath Project the \$1,000,000 allotment made in the past for the construction of the Malheur Project.

A small project has been worked out comprising a section of the main Malheur Project involving about 18,000 acres and estimated to cost about \$700,000. This is practically free from all the obstacles pertaining to the larger project. It also contains the best portion of the land, practically all the public land in the main project, and very little, if any road land.

It is recommended that this small project be kept in view for future construction when funds shall become available therefor.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, February 10, 1906.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to your letter of the 3rd instant relative to the Malheur Project, Oregon, in which for reasons set forth you rec-

ommend that no active work be done for the present on this project and that it be allowed to remain in status quo with the intention to utilize for the Klamath Project the \$1,000,000 allotment made in the past for the construction of the Malheur Project, and in which you state that a small project comprising a section of the main Malheur Project has been worked out, which is practically free from all the obstacles in the way of the development of the larger project, and recommend further that this small project be kept in view for future action when funds shall become available, you are advised that after consideration of the matter your recommendations are approved and you are directed to take such action in the premises as may be necessary to carry the same into effect.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# MANCOS PROJECT

THE SECRETARY OF THE INTERIOR,  
*Washington, October 21, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: In accordance with the requirements of the act of August 11, 1939 (53 Stat. 1418), as amended, I submit this report on the Mancos irrigation project in Montezuma County, Colorado, and request your approval of the findings and certifications contained herein.

## PROJECT PLAN

The proposed work involves the construction of a storage reservoir on Jackson Gulch, about four miles north of the town of Mancos, an inlet canal to take water from the West Mancos River and deliver it to the reservoir, and an outlet canal to which water will be released from the reservoir and returned to the river. The diversion and distribution system for the project lands has already been constructed. The dam will be an earth-fill structure, 130 feet high above the stream bed and 1,930 feet long across the crest. The inlet canal will be of 250 second-feet capacity and approximately three miles in length. The outlet canal will be of 200 second-feet capacity and less than three miles long. The reservoir back of the dam will have a capacity of 10,000 acre-feet.

The project lands, comprising approximately 10,000 acres, are situated in the valley along the Mancos River near the town of Mancos. The Mancos Valley, one of the oldest irrigated sections in western Colorado, has been settled for over sixty years, but many years ago the economic limit of settlement was fixed by the unregulated water supply. At present it is practicable to raise only some grain and forage crops, although the soil and climate are adapted to the growth of many other varieties. The dependable water supply which would be provided by construction of the project would furnish protection from drought and permit more diversified farming, thus stabilizing the agricultural industry in this community.

A new water supply for the Mesa Verde National Park is urgently needed. The present supply, which is from a deep well, is not satisfactory as the water is hot and must be cooled and treated to make it fit for use. The demand for water is constantly increasing and the park is becoming each year more popular. It is now planned to build a pipe line of 150 gallons per minute capacity, with an approximate length of twenty-one miles, to take water from the Jackson Gulch reservoir to the National Park headquarters. Approximately 120 acre-feet of the reservoir storage will be allocated to the Park Service, but the construction of the pipe line is not included as a part of the Mancos irrigation project.

### PARTICIPATION OF FEDERAL AGENCIES

It is proposed that the Bureau of Reclamation will construct the dam, reservoir, inlet canal, and outlet canal. The present plan, subject to change, is that the Bureau also will operate the irrigation works after they are built and negotiate contracts with the water users for the repayment of construction charges. The Department of Agriculture plans to make a detailed study of the agricultural pattern of the project to determine the part it can take in the rehabilitation of the area. It also plans to acquire and develop lands and to take other action which is indicated by the study to assist in accomplishing such adjustments as are shown to be necessary. The National Park Service expects to participate in the construction program by making available a Civilian Conservation Corps camp which would be used on the construction of the dam when suitable conditions permitted, and at other times on the installation of the pipe line. The Work Projects Administration and the Civilian Conservation Corps are expected to provide most of the labor and a relatively small amount of materials, supplies, and equipment. A report to you from the Work Projects Administration on the extent of its proposed participation is enclosed. The Department of Agriculture has advised that its proposed participation is discussed in a letter to me dated September 19, 1940, and that this letter, a copy of which is enclosed, may be used as its report to you. Until appropriations are made to the Department of Agriculture for its participation, it is planned that allocations from appropriations made under the authority of the act of August 11, 1939 (53 Stat. 1418) will be made to the Bureau of Reclamation, and that the Department of Agriculture will be reimbursed for services by the Bureau of Reclamation through transfers or advancement of funds from the allocations.

### ESTIMATED COST

The total estimated cost of the project is \$1,600,000, of which \$680,000 is expected to be obtained from appropriations made under the authority of the act of August 11, 1939, and the amendments thereto, and \$920,000 through work accomplished by the

Work Projects Administration or the Civilian Conservation Corps, or both. The construction of works by the Bureau of Reclamation is estimated to cost \$1,475,000, of which approximately \$600,000 is expected to be spent on the dam, reservoir and appurtenant works from appropriations made under the authority of the act of August 11, 1939, and its amendments. The program of the Department of Agriculture is estimated to cost \$125,000. A tabulation giving the estimated breakdown of expenditures is attached. Out of the \$3,500,000 made available by the Interior Department Appropriation Act of 1941, it is estimated that \$200,000 will be needed for work to be accomplished in the fiscal year 1941.

### ALLOCATION OF COSTS

The total estimated cost of the proposed construction can be properly allocated to irrigation. The reservoir will have no material influence on floods, and no flood control allocation is justified. There are no opportunities for profitable power development. Indian lands are not involved. It is believed that the irrigation interests can repay, in 40 annual installments, the entire allotment for construction from funds made available under the act of August 11, 1939, and the amendments thereto, now estimated at \$600,000. The amount of water to be reserved for the Park Service for use in the Mesa Verde National Park is relatively small, and it is planned that the financial contribution of the National Park Service to the construction of the dam, reservoir, and appurtenant works will be confined to the services, materials, or supplies which that agency may contribute in connection with the Civilian Conservation Corps camp which it shall make available to the project from its allotment of camps. The expenditures by the Department of Agriculture, estimated at \$80,000 from funds appropriated under the act of August 11, 1939 and the amendments thereto, will be repaid in accordance with Section 5 of the Act as amended.

### FINDINGS, CERTIFICATIONS, AND RECOMMENDATIONS

Based on the foregoing report and other data available to me concerning the proposed project, I make the following findings and certifications:

1. I find and certify that the proposed project has engineering feasibility.
2. I find that the estimated cost of the proposed construction is \$1,475,000, exclusive of the cost of participation by the Department of Agriculture, which is estimated at \$125,000.
3. I find that the entire estimated cost of this project properly can be allocated to irrigation; that no part of the estimated cost of the project can properly be allocated to municipal or miscellaneous water supplies or power and probably be returned to the United States in revenues therefrom; and that no part of the estimated cost of the project can properly be allocated to the irrigation of Indian trust and tribal lands, or to flood control.
4. I find and certify that the part of the estimated cost which probably can be repaid by the water users in accordance with the requirements of Section 4 of the Act of August 11, 1939, as amended, is \$600,000, in addition

to the monies out of the amount to be expended on land development and related activities to be repaid as provided in Section 5 of the Act of August 11, 1939, as amended.

I recommend that you approve the foregoing report and findings; and I recommend that you find, by your approval of this report that services, labor, materials, easements and other property, including monies for the construction of the project should be made available to the Department of the Interior by the Work Projects Administration, the Civilian Conservation Corps, or other Federal agencies in the amount found necessary by me to make up the difference between the estimated cost of the project construction and the amount which will be allocated from appropriations made under the provisions of the act of August 11, 1939, and the amendments thereto.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved OCTOBER 24, 1940.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

THE SECRETARY OF THE INTERIOR,  
*Washington, September 18, 1944.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: On October 24, 1940, you approved a report which I had submitted recommending the construction of the Mancos irrigation project in Montezuma County, Colorado, under the provisions of the act of August 11, 1939 (53 Stat. 1418) as amended. Copies of papers relating to the authorization of this project are enclosed.

There is also enclosed a letter dated August 17, 1944, addressed to you, from Mr. Wilson Cowen, Assistant War Food Administrator, acting in the stead of the Secretary of Agriculture, relating to the proposed participation of the Department of Agriculture in the project.

When the original papers were submitted in 1940, there was included a letter addressed to me, dated September 19, 1940, signed by Mr. Paul H. Appleby, Acting Secretary of Agriculture. In this letter Mr. Appleby outlined the activities proposed to be

undertaken by the Department of Agriculture, and estimated that \$80,000 would be required in addition to a non-reimbursable contribution from the Work Projects Administration amounting to approximately \$45,000. It was indicated that these funds would be used primarily for field investigations, surveys, and planning for the entire project and for land development of not more than 2,000 acres which might be purchased to effect unit reorganizations. Since the approval of the project, the Department of Agriculture has carried on detailed economic and engineering studies and now believes that more extensive participation would be desirable. The work now proposed would involve an additional expenditure of approximately \$393,000 from appropriations authorized by the act of October 14, 1940 (54 Stat. 1119). Such expenditures would be made from funds under the control of the Department of Agriculture.

In his letter, Mr. Cowen estimates that the water users can repay \$205,000 of the amount now requested, in addition to the \$80,000 previously allocated to the Department of Agriculture. This total of \$285,000 is in addition to the reimbursable construction cost of \$600,000 which the Mancos Water Conservancy District has agreed to repay to the United States under a contract dated July 20, 1942. The repayment estimates are based upon the economic studies recently completed by that Department and have not been reviewed by the Department of the Interior.

Construction of the project was undertaken by the Bureau of Reclamation in 1941 and continued with labor furnished by the Work Projects Administration and Civilian Conservation Corps until these agencies were liquidated. The War Production Board issued a stop construction order in connection with the Bureau's work on November 16, 1942. At that time negotiations with the Selective Service System relating to the establishment of a Civilian Public Service camp were well advanced, and the November 16 order was lifted on December 4, 1942, to the extent necessary to keep Civilian Public Service assignees gainfully employed. A Civilian Public Service camp was opened on the project on July 1, 1943. On August 12, 1943, the War Production Board removed all restrictions previously imposed with respect to the employment of persons in the custody of Civilian Public Service. Construction was continued, however, with Civilian Public Service labor only as it was believed that the presence of contract labor or free Government forces on the project would provoke serious conflicts in labor relations. Under these conditions, reasonably satisfactory progress has been made to date, and it is planned to continue this program throughout the 1944 construction season. Consideration is now being given toward expanding construction activities in 1945 and it is believed that some storage could be made available by the 1946 irrigation season. While the storage to be provided by the Bureau would furnish a much-needed supplemental water supply, the lands are, to a large extent, now under irrigation and could benefit immediately through the land leveling and other activities proposed by the Department of Agriculture.

Following consultation with the War Food Administrator, acting in the stead of the Secretary of Agriculture, I find that the

proposed construction is justifiable as an aid in the production of needed agricultural products. Accordingly, I transmit the recommendations of the Assistant War Food Administrator and recommend that you approve this report.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved December 20, 1944.

(Signed) FRANKLIN D. ROOSEVELT.



# MANN CREEK PROJECT<sup>1</sup>

THE SECRETARY OF THE INTERIOR,  
*Washington, March 10, 1941.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Mann Creek irrigation project in Washington County, Idaho; and pursuant to the authority of the act of August 11, 1939 (53 Stat. 1418), as amended by the act approved October 14, 1940 (Public No. 848, 76th Congress, 3d Session), I submit this report on the proposed project, and request your approval of the findings and certifications contained herein.

## PROJECT PURPOSE AND PLAN

The purpose of the project is to provide a regulated water supply for lands which have been farmed for many years, but which suffer losses from drought on account of the unregulated supply of water. The principal engineering feature as now proposed, subject to such change as the final surveys may indicate, is a storage reservoir on Mann Creek at a site about 13 miles northeast of the town of Weiser, Idaho. The estimated height of the dam which will create the reservoir is 118 feet above foundation, and its crest length is approximately 1,000 feet. The estimated live storage capacity of the reservoir is 8,600 acre feet.

The project lands, comprising approximately 4,300 acres, extend along the valley for a distance of about 12 miles below the dam site. Irrigation of lands began as early as 1874, but because of the unregulated supply of water it has been practicable to raise only some grain and forage crops, although the soil and climate are adapted to the growth of many other varieties.

The project will contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing farms for farm peoples who have been forced to leave other submarginal farm areas, and by stabilizing the farm econ-

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<sup>1</sup> Construction has never begun because the water users, in an election, failed to support the project.

omy of the farm areas comprising the unit. The project will also contribute toward the solution of the unemployment problem by providing considerable employment in its construction stages, and should contribute to the permanent solution of this problem in the vicinity of the unit by the stabilization of its agricultural economy.

### PARTICIPATION OF FEDERAL AGENCIES

It is proposed that the Bureau of Reclamation will construct the dam, reservoir and appurtenant works. The present plan, subject to change, is that the Bureau also will operate the irrigation reservoir after it is built, and will negotiate contracts with the water users for the repayment of construction charges.

The Secretary of Agriculture has been consulted regarding participation in the proposed project by the Department of Agriculture, and a report to you by the Secretary of Agriculture on the participation of that Department is transmitted herewith. As shown in that report, the Department of Agriculture proposes to make a survey from which the extent of its prospective participation may be determined.

For the construction and development of the project, the Work Projects Administration and the Civilian Conservation Corps are expected to provide most of the labor, and a small amount of materials, supplies, and equipment. A letter from the Work Projects Administration is enclosed. It will be noted therefrom that approximately 300 certified workers can be made available from surrounding counties, but that this will require the establishment of a work camp. If construction is undertaken by such a small organization, the construction period would be of such length as to require excessive costs for overhead which would have to be borne through expenditures from the General Fund. In addition, it would be necessary to construct and operate camps for housing the workers and to provide transportation to and from the camps for the workers. It is estimated that these costs would increase the total amount required from the General Fund beyond the repayment ability of the water users. To employ CCC labor in conjunction with WPA in order to reduce the length of the construction period would necessitate the mingling of both groups, a procedure which is undesirable on a job of this size. It appears, then, that participation by the Work Projects Administration should be restricted largely to the employment of workers in the immediate vicinity of the dam. These could be employed on isolated items of work such as road and telephone line relocation, clearing the reservoir site, and construction of permanent headquarters. The remainder of the construction would be accomplished with CCC forces.

### ESTIMATED COST AND FINANCING PROCEDURE

The total estimated cost of the project is \$1,005,000, of which \$1,000,000 is planned to be used for the construction of works by

the Bureau of Reclamation, and \$5,000 for surveys by the Department of Agriculture. Funds amounting to \$430,000 for construction, and \$5,000 for surveys, totaling \$435,000, are expected to be allotted from appropriations made under authority of the act of August 11, 1939, and its amendments. The remaining \$570,000 of the total estimated cost is the amount of Federal funds which is expected to be expended by the Work Projects Administration and the Civilian Conservation Corps, and which will be made available to the project through surveys, labor, materials, or other property, including money, supplied by these agencies. A tabulation giving the breakdown of the estimated cost and the proposed financing procedure is attached.

The Interior Department Appropriation Act, 1941, contains an appropriation of \$3,500,000 which was made pursuant to the authority of the act of August 11, 1939. The estimated requirements for the Mann Creek project for the fiscal year 1941 are \$200,000 for construction by the Bureau of Reclamation, and \$5,000 for surveys by the Department of Agriculture. The amount needed by the Department of Agriculture cannot be transferred to it from said appropriation of \$3,500,000, according to a ruling of the Comptroller General. However, the Department of the Interior is ready to join the Department of Agriculture in a recommendation to the Congress that by appropriate action it make available to the Department of Agriculture, pursuant to Section 12 (2) of the Act of October 14, 1940, such part of the \$3,500,000 appropriation item as is deemed necessary to meet the requirements of the Department of Agriculture on this and similar projects in the fiscal year 1941.

#### SIZE OF FARM UNITS

Section 4 (c) (5) of the Act of October 14, 1940, provides that the Secretary of the Interior "shall establish the size of farm units of irrigable lands on each project in accordance with his findings of the area sufficient in size for the support of a family on the lands to be irrigated." Surveys of the irrigable area have been completed to a sufficient extent that I am able to determine that the maximum size of farm units for the project will be not more than 160 acres. The exact size of the farm units, which may vary somewhat over the project area in accordance with varying conditions of the project lands, will be established after more complete and final surveys have been made. The survey planned by the Department of Agriculture may include an investigation of the economic size of farm units. If this is done, any recommendations that Department may have to submit on this subject will be considered before my determination is made.

#### FINDINGS, CERTIFICATIONS, AND RECOMMENDATIONS

Based on the foregoing report and supporting data concerning the proposed project, I make the following findings and certifications:

1. I find and certify that the proposed project has engineering feasibility.
2. I find that the estimated cost of the proposed construction is \$1,000,000, which is exclusive of the cost of participation by the Department of Agriculture now estimated at \$5,000.
3. I find that the estimated cost which properly can be allocated to irrigation is \$1,000,000 (construction of irrigation features is estimated to require \$430,000 from General Fund appropriations, and \$570,000 from WPA and CCC funds).
4. I find that no part of the estimated cost can properly be allocated to municipal or miscellaneous water supplies or power with the expectation that it probably will be returned to the United States in revenues therefrom.
5. I find that the water users probably can repay, in accordance with the requirements of Section 4 of the Act of October 14, 1940, \$430,000, which is equal to that part of the estimated cost allocated to irrigation to be met by expenditure of moneys appropriated pursuant to the Act of August 11, 1939, and the amendments thereto.
6. I find that no part of the estimated cost can properly be allocated to the irrigation of Indian trust and tribal lands.
7. I find that no part of the estimated cost can properly be allocated to flood control.

I recommend that you approve the foregoing report and findings, and that you find, by your approval of this report, that services, labor, materials, easements, and other property, including money, for the construction of the project, should be made available to the Department of the Interior by the Work Projects Administration, the Civilian Conservation Corps, or other Federal agencies, to the extent necessary to make up the difference between the overall estimated costs of the project and the part thereof to be met by expenditures of moneys appropriated under the provisions of the Act of August 11, 1939, and its amendments. Also, I recommend that by your approval of this report you determine that the United States shall be reimbursed for such services, labor, et cetera, made available to the Department of the Interior in such amounts, if any, as on final determination of construction costs will not increase the repayment obligations beyond \$430,000.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.  
July 7, 1941.

Approved excepting that portion relating to the expenditure of funds by the Department of Agriculture from appropriations made pursuant to the act of August 11, 1939, as amended, the limit of cost to be \$1,000,000.

(Signed) FRANKLIN D. ROOSEVELT.

# MILK RIVER PROJECT<sup>1</sup>

UNITED STATES GEOLOGICAL SURVEY,  
*Malta, Montana, September 19, 1904.*

CHIEF ENGINEER,  
*Reclamation Service, Washington, D. C.*

As a result of an examination of the Reclamation Projects in northern Montana, we have to make the following report:

The St. Mary-Milk River project involves the storage of water in St. Mary Lakes and its conduction to the north fork of Milk River by means of canal 27.4 miles long. The water is then to flow down Milk River through Canada, into Montana, to be used in Lower Milk River Valley. In order to utilize the diversion canal to its full capacity and to provide a satisfactory water supply for the lands to be irrigated it is necessary to have a large storage reservoir in the Lower Milk River Valley. For this purpose, complete surveys have been made of Bowdoin Lake, near Malta. This reservoir belongs to private parties, who are very unreasonable in their demands for its use. It also necessitates the removal of about 11 miles of railroad, which would be expensive and troublesome. The obstacles have threatened to delay the whole project, or render its feasibility doubtful. Fortunately, however, the topographic surveys have disclosed the existence of a reservoir site on Milk River at Chain Lakes above Havre, entirely in Montana, on which surveys are now in progress, and which appears to be a feasible site with perhaps 300,000 acre feet storage capacity. This removed the most serious obstacle to the project from an engineering stand point. The only remaining difficulty of importance, is the possibility of the diversion of St. Mary water while flowing through Canada in Milk River. To remove this danger, an international agreement should be arranged, by which the Canadian Government will undertake to protect the delivery of stored water through Milk River. The terms of this agreement as set forth in your conversation with Mr. E. T. Galt, of date April 5, 1904, seemed to us to be satisfactory with some amplification.

<sup>1</sup>See the finding of feasibility (St. Mary's) by the Director, March 7, 1903 (page 601), and the Secretary's authorization, March 14, 1903 (page 609).

The Chain Lakes Dam and Reservoir (Fresno Dam and Reservoir) was initiated under the provisions of the National Industrial Recovery Act of 1933.

On page 3 of the memoranda under the heading "Diversion from Milk River" it should be made clear that under no circumstances can stored water be demanded, during the months of January, February, March, April and May, or in other words, that during those months the Canadian canal is entitled to take from Milk River *only* such water as may be flowing in Milk River at the time in its natural state, without increment from the St. Mary canal, up to 330 second feet, less that previously appropriated in Montana.

It should also be emphasized that any recognition of rights for the diversion of water from Milk River are necessarily subject to the prior rights of inhabitants of Milk River Valley in Montana. The memorandum recognizes Canadian rights to prior appropriations from St. Mary River, and should recognize with equal clearness, the prior appropriations from Milk River in Montana. Neither the American, nor the Canadian Government has the right to interfere with prior appropriations either from St. Mary or Milk River.

It is important that a satisfactory agreement be entered into along the above lines, as early as possible, as it removes the chief remaining obstacle in the way of the construction of the St. Mary project.

The water supply for this project is considered sufficient for approximately 200,000 acres of land, and it will require about 160,000 acres of irrigated land to pay for the project. The data regarding irrigable lands is not complete, but it is known that more than 160,000 acres can be reached by diversion from Milk River, and this may reach 200,000 acres. Of the area reached, however, more than one half is private land, and part of this is already irrigated. The project is not feasible unless a large majority of the private land covered contribute to the cost. It is important, therefore, that the disposition of the land owners on this point be ascertained at the earliest possible moment. A portion of the irrigable land is on the Fort Belknap Indian Reservation, and as soon as matters are arranged with Canada, Legislation should be secured to render these lands available for irrigation under the provision of the Reclamation Act.

We have provided for the elimination of the change in location of the Great Northern railroad at the diversion site near Dodson, and if our expectations of results from the Chain Lakes Reservoir are realized, the removal of tracks from the Bowdoin Reservoir site will not be necessary for this project.

According to appointment, we were met by Messrs. Summers, Patterson and Hamilton, representing the Great Northern railroad, and in conference with them, we were informed of the results of the surveys and estimates of the cost of removal of railroad track. The figures given us are copied and transmitted herewith. We were not able to obtain any specific declaration of policy from the railroad people regarding the division of costs of relocation of track, and cannot make any recommendations on that point now. We are convinced that the St. Mary-Milk River Project is feasible with the removal of the difficulties mentioned.

The project on the Marias involves a diversion dam of earth 195 feet high, with some additional height to provide necessary storage on the top of the lake. The canal would be over 17 miles long before reaching any irrigable land, and from that point would command probably 200,000 acres of land on Lonesome Prairie, and its waste waters would drain into Milk River and be available for irrigation there. A reservoir site has been found at Lonesome Lake in the midst of the Lonesome Prairie, and will be surveyed next month, as part of the Marias Project. Little is now known of its size and value. Storage to the amount of about 75,000 acre feet can also be provided in Two Medicine Lake, on the head waters of the Marias. It is probable that the water supply and storage facilities of the project will provide irrigation for over 250,000 acres, which may be used either on Lonesome Prairie or in Milk River Valley, wherever most needed. It appears probable that if the Canadian Government does not make satisfactory guarantees to justify the construction of the St. Mary Reservoir and canals, the Marias drainage basin can be made to serve all available land in Milk River Valley, and an additional area on Lonesome Prairie. The investigation on the Marias River cannot be completed this year, but enough will be known to determine its approximate cost and the acreage it will serve. It is probable that the acreage cost will be greater than that of St. Mary.

We have requested Mr. C. C. Babb, District Engineer, to obtain the following information, named in the order of its importance:

1. Additional available acreage to be irrigated in Milk River Valley.
2. The capacity and cost of Chain Lakes Reservoir.
3. Capacity and cost of Lonesome Lake Reservoir.
4. Area of available land under Marias Canal.
5. Area of available land under Lonesome Lake Reservoir.
6. Area of lake formed by diversion dam on Marias River.
7. Completion of borings at Marias Diversion.

We have the following recommendations to make to you:

1. That steps be taken as soon as possible, to obtain from the Canadian Government a guarantee of the use of Milk River channel for the conduction of St. Mary waters.

2. That Mr. C. C. Babb be instructed to announce to the people of Milk River Valley that subject to suitable arrangements with Canada, the irrigation of Milk River Valley is feasible and will be undertaken as soon as a sufficient acreage of private lands are pledged to return their proportion of the cost of the project, and for this purpose they are advised to form an organization of land owners to obtain pledges of land for the above purpose, and that it is desirable that 100,000 acres of land be pledged, and absolutely necessary that at least 70,000 acres be thus pledged.

3. That as soon as the proper arrangements with Canada can be made, and the proper acreage of land subscribed, steps be taken to acquire necessary right of way, and to let contracts for construction.

4. If proper arrangements cannot be made promptly with Canada, we recommend that the investigation of the Marias be completed as soon as possible, with a view of irrigating Milk River Valley from that source.

Very respectfully,

(Signed) A. P. DAVIS.  
GEORGE Y. WISNER.  
H. N. SAVAGE.  
CYRUS C. BABB.

OFFICE OF THE SECRETARY,  
*Washington, March 25, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of the 24th instant to the Department you have reported with respect to the progress of the surveys and examinations of the Milk River Project, Montana, and have referred to the situation in the Milk River Valley with respect to the contemplated diversion of the waters of Milk River by citizens of Canada, and to the necessity of taking action at the present time in the matter of the proposed construction of a portion of the project.

You have stated that there is not now available in the Reclamation fund an amount sufficient to complete the entire project without depriving other states of their proper share of the fund, and you have stated that it is estimated that \$1,000,000 will be sufficient to store waters in the St. Marys Lakes and divert this across the low divide into the North Fork of Milk River. You have accordingly recommended that \$1,000,000 be provisionally set aside in the Reclamation fund for the construction of storage works on St. Marys River, Montana, and for diverting the stored waters to the head of Milk River in that State.

I have given due consideration to the subject matter of your letter and in view of the facts you have related and of your recommendation, I hereby set aside \$1,000,000 provisionally from the fund provided by the act of June 17, 1902—32 Stat. 388—and authorize you to take the proper action toward carrying out that portion of the project which was considered in your letter.

With respect to the organization of water users' associations and the entering into of contracts, reimbursing the reclamation fund, as well as the preparation of final plans and advertising for



bids, I authorize you to take action under the conditions you have outlined.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
Secretary.

THE SECRETARY OF THE INTERIOR,  
*Washington, August 8, 1935.*

THE PRESIDENT,  
THE WHITE HOUSE.

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*) indicated that Section 4 of the Act of June 25, 1910, 36 Stat., 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Milk River storage project (known also as the Chain Lakes Storage project) is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924, 43 Stat. 701.

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the act of June 17, 1902, 32 Stat., 388, and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 24, 1933, I approved an allotment of \$2,000,000 for the construction of upstream storage on the Milk River, Montana. The water developed in the proposed reservoir will be used on some 126,000 acres of land, embraced in the Milk River Reclamation project. The Malta, the Glasgow, the Harlem, the Zurich, the Paradise Valley and the Fort Belknap Irrigation Districts are arranging to enter into contracts with the United

States to pay the cost of the proposed reservoir, with a capacity of 150,000 acre feet.

The Milk River project was authorized in 1903 and construction began in 1905. The water supply is obtained from the St. Mary lakes, Swift Current Creek and Milk River.

There is need of a supplemental water supply upon the lands in these six districts, as in recent years losses have been suffered because of an inadequate supply.

Studies which have been made by the Bureau of Reclamation indicate that the water supply is adequate for the proposed reservoir, that the construction of the proposed dam is feasible from an engineering standpoint, and that the dam can be built within the cost of \$2,000,000 which the six districts are to agree to pay.

The lands in the six districts are not held at unreasonably high prices since the amount of unentered public land in the vicinity tends to prevent a large rise in land prices. Also the region is a sub-arid one and in some seasons crops can be raised without irrigation. This and the necessity of paying construction charges on the irrigated land tend to check any unreasonable speculation in land values.

I find that the project is feasible, that the land to be watered thereby is adaptable for actual settlement and farm homes, and that the landowners benefited by the project will be able from the agricultural produce of the lands irrigated by the reservoir to return the cost of the development to the United States.

I recommend that the project be approved and that necessary authority be issued to this Department to make contracts for the construction of the project and to proceed with the work.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved (Undated)

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

AUGUST 21, 1935.

From: Acting Commissioner  
To: Chief Engineer, Denver, Colorado  
Subject: Authority of President for Construction of Chain of  
Lakes Reservoir, Milk River Project.

1. On August 9 you were furnished a copy of letter written August 8 to the President by the Secretary regarding the foregoing subject. You are advised that the President has now ap-

proved the recommendation, no date being inserted in connection with his approval.

(Signed) M. A. SCHNURR.

OFFICE OF THE SECRETARY,  
*Washington, March 11, 1941.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act of 1940 contains an item of \$5,000,000 from which allocations may be made by you:

For construction, in addition to labor and materials to be supplied by the Work Projects Administration, of water conservation and utilization projects \* \* \* in the Great Plains and arid and semiarid areas of the United States \* \* \*

The appropriation was continued in the Interior Department Appropriation Act of 1941 and the money made available until expended. All expenditures from the appropriation, and as much of the expenditures from the Work Projects Administration fund as the President determines, are to be considered reimbursable. Hereinafter the appropriation item will be referred to as the "Water Conservation Appropriation."

#### PROJECT PLAN

The Milk River project on the Milk River in Blaine, Phillips, and Valley Counties, Montana, was brought under irrigation by the Bureau of Reclamation in the year 1911. The Fersno Dam on the Milk River above the project lands was recently completed by the Bureau to provide supplemental water storage for the project and for adjacent lands. One of the main canals of the project has a larger capacity than is needed for the lands in cultivation and the community has been urging for many years that an additional area of 9,400 acres of fertile, but arid lands lying above this canal in the so-called Saco Divide unit be brought under cultivation. The proposal is a desirable one. It is recommended for construction by the Northern Great Plains Committee in its 1938 report to you. However, the cost of the new work plus the proportionate

cost for the works already constructed, including Fresno storage, made the plan infeasible until the Congress passed, and you approved on October 10, 1940, Public No. 841, entitled "An act authorizing allocation of funds for the construction of the Saco Divide unit, Milk River project, and for other purposes." This act provides that the part of the cost of the Fresno Dam and Reservoir allocated to the unit and the new construction shall be repaid in accordance with the provisions of the Water Conservation Appropriation, and that the cost of the other common facilities of the Milk River project allocated to the Saco Divide unit shall be repaid in not to exceed 20 annual installments, the first to accrue not later than the year following the last installment due and payable for Fresno storage and the new construction.

The lands of the Saco Divide unit, comprising 9,400 acres, are situated between Beaver Creek and Milk River near Saco, Montana, in Phillips County. They lie above the Nelson South Canal of the Milk River project and are planned to be irrigated by pumping from this canal which will be slightly enlarged for a distance of 10 miles. Water for irrigation will be raised a maximum height of 85 feet and will be conveyed to the farms by a lateral system approximately 30 miles in aggregate length. Electrical energy for pumping is expected to be obtained from the Montana Power Company or from the plant now being installed at Fort Peck Dam, and will be delivered by transmission lines already in existence or to be erected by the Bureau of Reclamation with funds specifically appropriated for that purpose.

The principal crops which will be raised on the project will be forage and small grains to be used in the support of the livestock industry. The main line of the Great Northern Railroad passes through Saco a few miles from the project, thus providing access to markets. It is planned to divide large land holdings into farm units of more desirable sizes and to settle a part of the project with destitute drought-stricken farmers.

The project will contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing farms for farm peoples who have been forced to leave other submarginal farm areas, and by stabilizing the farm economy of the farm areas comprising the unit. The project will also contribute toward the solution of the unemployment problem by providing considerable employment in its construction stages, and should contribute to the permanent solution of this problem in the vicinity of the unit by the stabilization of its agricultural economy. The project will further serve materially to put to use waters that are being and can be developed through the works of the Milk River project, and will result in the further and better conservation and use of soil and moisture.

#### PARTICIPATION OF FEDERAL AGENCIES

It is proposed that the Bureau of Reclamation will construct the irrigation works. As the unit will use the irrigation facilities of the Milk River project, it is also proposed, subject to change,

that the Bureau of Reclamation will operate the irrigation works after they are built and negotiate contracts with the water users for the repayment of construction charges. The Department of Agriculture plans to purchase the excess lands, divide them into economic sized units, and settle them in part with drought-stricken farmers. It also expects to level the rough lands and to dig the necessary farm ditches. The Work Projects Administration is expected to provide most of the labor and a small amount of materials, supplies and equipment. A camp from the Civilian Conservation Corps may be used if there is not sufficient labor from the relief rolls available for the efficient construction of the project. Letters from the Department of Agriculture and the Work Projects Administration, commenting on their prospective participation, are enclosed. It is recommended that the funds requested by the Department of Agriculture for the acquisition of agricultural lands be transferred directly to the Department of Agriculture. It is planned that the Department of Agriculture will be reimbursed for all other services in connection with the project by transfers or advances from the funds made available to the Bureau of Reclamation.

#### ESTIMATED COST AND FINANCING PROCEDURE

The total estimated cost of construction, land acquisition, and land development is \$1,075,000. The Bureau of Reclamation plans to use \$595,000 of this amount for the construction of irrigation works. The Department of Agriculture expects to spend \$330,000 for settlement and land development, and \$150,000 for land acquisition. Funds amounting to \$235,000 for construction and \$350,000 for land acquisition and development, totaling \$585,000, are expected to be allotted from the Water Conservation Appropriation. Of these amounts, all are to be repaid by the water users in accordance with the provisions of the acts previously mentioned, excepting \$25,000 which will be credited to the project after it is built through the transfer or sale of equipment used in construction. It is noted that the enclosed letter from the Work Projects Administration mentions the figure of \$560,000 as the amount to be allotted from the General Funds. This includes only the amount to be repaid by the water users. The Work Projects Administration has advised that it is agreeable to the use of the total allotment of \$585,000 for the purposes indicated. The remaining \$490,000 of the total estimated cost is the amount of Federal funds which is expected will be expended by the Work Projects Administration, or the Civilian Conservation Corps, or both, for construction and land development. A tabulation giving the breakdown of the estimated cost and the proposed financing procedure is attached. If forces from the Civilian Conservation Corps are used, the amount to be expended by the Work Projects Administration and the Civilian Conservation Corps is estimated to be equal to that shown for expenditure by the Work Projects Administration. However, the breakdown under the various features will probably not be the same due to the difference in admin-

istrative procedures of the two agencies and the legislation which applies to them.

#### CONDITIONS PRECEDENT TO CONSTRUCTION OR OPERATION

It is contemplated that actual construction will not be started until the Department of Agriculture has made sufficient progress in its effort to obtain control of the land at prices which do not exceed the appraised valuation to insure the successful operation of the project.

Water will not be delivered until repayment contracts have been negotiated and agreements have been obtained to reduce land holdings to units of irrigable lands sufficient in size for the support of a family, but not exceeding 160 acres of irrigable land in one ownership. These agreements covering the sales of excess lands will provide also that if sales are made in excess of the appraised values of the excess lands, as determined by the Federal Government, a percentage of the excess to be determined by the Government shall be paid over to the United States for application on the construction charges against such land as a condition to the right of such land thereafter to receive water from the unit supply.

#### RECOMMENDATIONS

I recommend that the construction, repayment negotiations, and project operations be conducted by the Bureau of Reclamation, and that the land development program and the arrangements for settlement, including the acquisition of agricultural lands, be undertaken by the Department of Agriculture.

I recommend that an allocation of \$435,000 from the Water Conservation Appropriation be made to the Department of the Interior, Bureau of Reclamation, and that the allocation from the Water Conservation Appropriation for land acquisition, amounting to \$150,000 be made to the Department of Agriculture. I also recommend that the Work Projects Administration be requested to give prompt consideration to project applications which will be filed by the Bureau of Reclamation to obtain the assistance of that agency in the construction of the Saco Divide unit.

I recommend that by your approval of this report you determine that the United States shall not be reimbursed for the expenditures by the Work Projects Administration and the Civilian Conservation Corps.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved April 11, 1941.

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
*Washington, February 2, 1944.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Dodson Pumping Unit of the Milk River project involving the irrigation of approximately 1,200 acres of land in Phillips County, Montana, and pursuant to the authority of the Act of August 11, 1939 (53 Stat. 1418), as amended (herein called the Act), I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

### PROJECT PURPOSE

The primary purpose of the proposed project would be to provide new works supplementary to the existing Dodson North Canal, so that water could be made available to 1,200 acres of new land, lying north of Dodson, Montana, on the north bank of the Milk River. Immediate development of the lands in the unit would provide a means of increasing the production of agricultural products now vitally needed. After the war it is believed that the unit would contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing new homes and opportunities for additional farm families.

### THE PLAN

The water supply would be made up of direct-flow water from the Milk River supplemented with storage water from the existing Fresno reservoir of the Milk River project.

The water would be taken from the Milk River at the existing Dodson Dam and conveyed through the Dodson North Canal for about one mile, thence through a one-half mile feeder canal to the pump site. From this point water would be raised to a new main canal from which it would be distributed within the unit. Structures contemplated for the development would consist of a transmission line, a pumping plant, a culvert, a metal flume with timber supports, and the usual checks, turnouts, wasteways, small bridges, and similar features.

The project works would be supplemental to the storage works heretofore built by the Bureau of Reclamation under contract with the irrigation districts of the Milk River project under the Federal Reclamation Laws. An adequate supply of water for the lands to be benefited by the proposed works is believed to be available.

Changes in these general plans may be found necessary, but it is expected that any changes will be of a minor nature and will neither alter the general objectives of the proposed project nor result in material departures from the present findings, predicated on the present plans therefor.

### PARTICIPATION OF FEDERAL AGENCIES

The Bureau of Reclamation would construct the transmission line, pumping plant, culvert, canal system, and other necessary and appurtenant structures, and, subject to change, also would operate the system after it is built. The Bureau would negotiate contracts with the water users for the repayment of the reimbursable construction charges.

The War Food Administrator, acting in the stead of the Secretary of Agriculture, has transmitted a letter which is enclosed, indicating his approval of the proposed project and the extent of the proposed participation by the Department of Agriculture. From this letter it will be noted that the War Food Administrator concurs in my belief that the construction would be justifiable as an aid in the production of needed agricultural products.

Services, labor, materials, supplies, equipment, and similar items which may become available through the Selective Service System, Prisoner of War Camps, or other Federal agencies may be utilized under the terms and conditions fixed by such agencies, if, in my opinion, such use would effectively expedite construction of the proposed project.

### PARTICIPATION OF NON-FEDERAL AGENCIES

Local interests requesting the development of the area indicate that, if requested, they would form or become part of a suitable organization with which to contract with the Government for the repayment of that part of the construction cost which is determined to be reimbursable. The water users benefited by the work of the Department of Agriculture would be required to repay the reimbursable money expended in that work in accordance with the Act. Aid which may be offered by local interests probably would be accepted.

### ESTIMATED COST AND FINANCING PROCEDURE

The cost of the project works which would be undertaken by this Department would be \$62,000. The new lands would also assume an obligation of \$60,000 as their proportionate share of the cost of works already constructed, these works comprising principally Fresno storage, Dodson Dam and the Dodson North Side Canal. Thus, the total cost of the proposed project would be \$122,000. In connection with the development, the Department of Agriculture would undertake activities pursuant to Section 5 of the Act which are estimated to cost approximately \$84,000. The



activities of both Departments would be financed with monies heretofore appropriated for Water Conservation and Utilization projects. The total cost is estimated to be approximately \$206,000.

The ability of the prospective water users on the project to repay construction costs is dependent to a large extent on the amount which they must pay for electrical energy for irrigation pumping. Initially, pumping power would be obtained from the Montana Power Company, probably at an average rate of about \$0.015 per kilowatt-hour. At this rate the water users could make a total annual payment of about \$420. After the war, it is believed that power may be made available from Fort Peck at a rate as low as  $2\frac{1}{2}$  miles per kilowatt-hour. At the latter rate, the water users could make an annual repayment of approximately \$1,836. Assuming that Fort Peck power at that rate becomes available by 1951 and that a maximum development period of 10 years from completion of construction is permitted, it would mean that the water users could pay an annual installment of \$1,836 for a full 40-year period, resulting in a total payment of \$73,440, in addition to the cost of works heretofore built. On these assumptions, the most favorable repayment situation is presented.

If, on the other hand, the average cost for pumping power were to remain at the comparatively high rate of \$0.015 per kilowatt-hour throughout the repayment period, the water users could pay a total of \$16,800, in addition to the cost of works heretofore built. This would be the least favorable repayment situation.

Since it is impossible to forecast what the situation as to the various factors bearing on repayment will be at the time the repayment contract is made, it is expected that a repayment plan fixed by the contract will provide for repayment within the two limits above stated, and will provide for adjustment as required by changes in the controlling factors of the rate for power and length of the development period. All net costs of the additional works which would be hereby authorized, in excess of the amount finally determined to be repaid by the water users within the limits here stated, would be treated as non-reimbursable. Construction repayments to the extent of \$60,000 covering a proportionate share of the works heretofore built would be covered into the reclamation fund.

It is estimated that the water users could repay \$63,000 for the costs of the work proposed by the Department of Agriculture. All costs in excess of this amount would, as authorized by the Act, be treated as nonreimbursable.

Sufficient funds for the initiation of the proposed work have been appropriated and are now available for allotment.

#### SIZE OF FARM UNITS

Since the exact size may vary over the proposed project area in accordance with the varying conditions of the lands, limitations on the various holdings will be established after more complete and final surveys have been made. The maximum size of holding in a single ownership, however, should not exceed 160 acres of

irrigable land. In this connection, considering the problems attendant on farm operation during the war and the need for the greatest possible production of agricultural products with the available farm labor supply, I expect to determine that for the duration of the war the limitations on the delivery of water will not be applicable to existing land holdings which exceeded in area the maximum to be established for any farm unit.

#### FINDINGS, CERTIFICATIONS, RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

1. The proposed project has engineering feasibility.
2. The total estimated cost, exclusive of the proportionate share of the cost of irrigation works already constructed, is \$62,000.
3. The estimated cost which properly could be allocated to irrigation is \$62,000.
4. The water users probably could repay in accordance with the requirements of Section 4 of the Act, between \$16,800 and \$73,440, depending on power rates for irrigation pumping and the length of the development period, in addition to the payment of \$60,000 as the proportionate share of the cost of works heretofore built under the Federal reclamation laws.
5. No part of the estimated costs properly could be allocated to municipal or miscellaneous water supply or power.
6. No part of the estimated costs properly could be allocated to the irrigation of Indian trust and tribal lands.
7. No part of the estimated costs properly could be allocated to flood control.
8. The proposed construction is justifiable as an aid in the production of needed agricultural products.

If you approve the project, it is planned to proceed immediately with matters relating to land acquisition, water rights, and repayment contracts so that the requirements of the statutes may be met as promptly as possible. The project has heretofore been submitted to the War Production Board for clearance for commencement of construction and procurement of materials needed for construction.

On the basis of the foregoing report and findings, I recommend that you approve this project for construction.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
Approved March 17, 1944.

(Signed) FRANKLIN D. ROOSEVELT.

# MINIDOKA PROJECT<sup>1</sup>

MARCH 31, 1904.

Mr. F. H. NEWELL,  
*Chief Engineer, U. S. G. S., Washington, D. C.*

SIR: The undersigned have examined the locality, surveys, plans and drawings of the proposed irrigation structures on Snake River, near Minidoka, Idaho, and submit thereon the following report:

The project contemplates the construction of a diverting dam 50 feet high in the gorge above Howell's Ferry, and the diversion of water on both sides of the river into canals for the irrigation of lands below.

The surveys show that it is possible to irrigate by gravity about 68,000 acres of good land. In addition to this, it is possible to divert about 3,000 cubic feet of water per second which is appropriated by vested interests below, and by turning this back into the river, generate over 10,000 horsepower, which can be used to pump an ample supply of water to about 53,000 acres of land lying above the gravity canals making a total area irrigable from this project of about 120,000 acres.

The report of Mr. D. W. Ross attached hereto, describes this project more in detail, and with the main features of scope and plan, we are in essential agreement. We have directed the modification of some minor features of the designs and estimates, and directed further examinations that may have bearing on the ultimate results, and cost per acre. The examinations and plans, however, are well and wisely perfected for the main features, and we are decidedly of the opinion that the project is feasible and recommend its early construction. To this end we have prepared specifications covering the dam and headworks, which we enclose, and recommend that 500 copies be printed, for distribution to applicants.

We also enclose a form of advertisement, which we recommend be inserted as soon as practicable in the following periodicals:

Engineering News  
Engineering Record

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<sup>1</sup> The Upper Snake River Division was initiated under the terms of the National Industrial Recovery Act of 1933.

Government Advertisers  
Salt Lake Tribune and  
Portland Oregonian.

The drawings will be forwarded as soon as some necessary alterations can be made.

We recommend that the Honorable Secretary of the Interior be requested to set aside the sum of \$2,600,000 from the Reclamation fund for the construction of the Minidoka Project.

(Signed) A. P. DAVIS.  
H. N. SAVAGE.  
GEO. Y. WISNER.

APRIL 15, 1904.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Surveys and investigations have been conducted in southern Idaho on Snake River, at what is known as the Minidoka project, described in the First and Second Annual Reports of the Reclamation Service, and in the quarterly statement and estimates prepared for your approval.

On March 21 Mr. D. W. Ross, the District Engineer in charge, reported upon the project, this report being referred to a board of engineers consisting of Messrs. A. P. Davis, H. N. Savage and George Y. Wisner. On March 31, 1904, this board made a formal report, recommending the construction, and the insertion of advertisements calling for bids to be opened June 22, 1904. It is important that construction begin at an early date on a dam in Snake River above Howell's Ferry, about 6 miles south of the railroad station of Minidoka on the Oregon Short Line R. R. Canals for the diversion of water are to be taken out on both sides of the river.

The surveys show that it is possible to irrigate by gravity about 68,000 acres of good land; in addition to this, it is possible to generate over 10,000 H.P., which can be used to pump and supply water to about 53,000 acres of land lying above the gravity canals.

It is believed that the cost of irrigation will be about \$22 per acre; similar lands, when reclaimed, are selling at from \$40 to \$100 per acre. The work of reclamation is divided into two or more parts; the first division, including the dam and a portion of the canals in heavy rock work; the second division is for the main distributing system which can be let in small contracts to actual settlers.

The matter has been discussed somewhat fully in its broad features with citizens of Idaho, and by letter of April 6 the Gov-

ernor of the State transmits a statement signed by a great number of prominent citizens, stating among other things, that: "We hereby endorse and recommend the approval of that (Minidoka) project, as tending in the largest measure to promote the development of the whole upper Snake River Valley." Copies of this statement have, I believe, been presented to you by the Congressional delegation from Idaho.

Since this project meets the approval of the Reclamation Service, and also of the prominent officials and citizens of Idaho, I respectfully recommend that construction be begun at once, and that suitable advertisement be inserted, calling for bids for the construction of the dam and principal works. Also that the specifications and other necessary papers be printed as soon as possible, in order to enable construction to proceed during the present year.

It is also recommended that the sum of \$2,600,000 be provisionally set aside for the construction of this work. This amount will not be needed for a number of years, as it includes the extensions which will probably not be built until the first portion is in operation. It appears advisable, however, to set this fund aside tentatively.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, April 23, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: You reported to the Department on the 15th instant in the matter of the proposed Minidoka Project, Idaho, under the reclamation act of June 17, 1902—32 Stat., 388.

It is shown by your report that the project is a feasible one, that it is endorsed by citizens and officials of Idaho as tending largely to promote the development of the whole upper Snake River Valley and that it meets the approval of the Reclamation Service.

You have stated that about 68,000 acres of good land can be irrigated by gravity, that the cost of irrigation under this project will be about \$22 per acre and that similar lands, when reclaimed, are selling at from \$40 to \$100 per acre.

Your recommendations are that construction be begun at once, that suitable advertisements be published calling for bids for the construction of the dam and principal works, that specifications

and other necessary papers be printed and that the sum of \$2,600,000 be provisionally set aside for construction.

After consideration of the matter, I approve all of your recommendations and the sum of \$2,600,000, or so much thereof as may be necessary, is hereby set aside from the fund provided by the act of June 17, 1902—32 Stat., 388—tentatively, for use in construction and you are hereby authorized to take such action under the law as may be essential to carry this project to a successful conclusion.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

THE SECRETARY OF THE INTERIOR,  
*Washington, July 2, 1928.*

THE PRESIDENT,  
THE WHITE HOUSE

MY DEAR MR. PRESIDENT: The time has arrived for final consideration of the construction of the Gravity Extension Canal of the Minidoka project.

The following preparatory steps have been taken:

1. An Act of Congress of January 12, 1927, (44 Stat., 934, 958) appropriated \$400,000 for the investigation and construction of the Gravity Extension Unit of the Minidoka Reclamation project, in Idaho. An act of March 7, 1928, Public No. 100, appropriated \$1,075,000 for continuation of construction of this project.
2. The economic investigation and engineering plans provided for in the above appropriation have been completed.
3. Money to pay for increasing the capacity of the first 3½ miles of the main canal has been provided by the parties interested in this increase.
4. Bids for the first section of the canal have been received. The one recommended for approval is below the engineering estimate.
5. An irrigation district has been created which embraces all of the privately-owned lands now irrigated, the partly developed land not irrigated and the public land susceptible of irrigation. This district has entered into a contract with the Government to repay the entire cost of this development in accordance with the terms of the Reclamation Act within 40 years.

Before contracts for the construction of this development can be let, it is necessary that a finding, required by Subsection B, Section 4, of the Act of December 5, 1924, as follows, be made by the Secretary of the Interior, and that construction be approved by the President as required by the Act of June 25, 1910.

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information

in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The engineering and economic investigations necessary to the preparation of a report under Subsection B disclosed the following facts. They seem to justify the immediate beginning of this development.

1. It will create a market for 400,000 acre-feet of water out of the now unsold capacity in American Falls reservoir, and will secure for the Government an obligation for the repayment of \$2,000,000 of the construction cost of this storage. Without some such development this unused capacity of the reservoir will bring no return on the construction cost.

2. It will give an ample and an assured water supply to 80,000 acres of land which now have an uncertain and inadequate water supply. Doing this will create a stable and prosperous agricultural community, where now the settlers are menaced by impending failure and have suffered serious financial loss. A full water supply will be provided for 16,000 acres of land, scattered through the settled and cultivated area, now provided with supply canals and lateral ditches, with the land partly leveled. The existence of roads, schools, and social advantages will make this land especially attractive to settlers, and it is believed it will be settled and irrigated as soon as water is available.

3. The canal will command and be able to supply irrigation water by gravity for 20,000 acres of fertile public land. It will be built large enough to supply water to this land. While there may be no immediate return from this expenditure, the cost will be less than half the cost of the storage which is now idle and which this development will bring into use.

### ENGINEERING FEATURES

It is proposed to construct a main canal diverting water from Snake River at Milner dam, 25 miles east of Twin Falls, Idaho, and running northwesterly for a distance of 70 miles to an intersection with a constructed canal now serving lands in the vicinity of Gooding, Idaho. The latter canal is part of a system constructed under the Carey Act 20 years ago for the irrigation by gravity of some 80,000 acres of land with water from Big Wood and Little Wood rivers, and for which the present water supply has been found uncertain and inadequate. The proposed canal will permit the waters from Big and Little Wood rivers now being used below its level to be devoted exclusively to the irrigation of 36,000 acres of higher lands, and will so augment the water supply for these higher lands as to permit profitable cultivation. In addition to this indirect irrigation the proposed Government canal would be large enough to irrigate directly 80,000 acres of land, of which 60,000 acres are now in a position to be reclaimed and cultivated and 20,000 acres of public land, hereinbefore referred to. The expenditure of \$800,000 for laterals for this public land will not be made until settlement is assured.

No diversion dam will be required as the Milner dam, belonging to the Twin Falls South Side and Twin Falls North Side Canal Companies, elevates the water to the required level. Under arrangements now made this elevation is provided without cost to the Government.

The first  $3\frac{1}{2}$  miles of the canal will have a capacity of 2,750 second feet. Of this, 1,000 second feet will be used by the North Side Twin Falls Canal Company, which has a canal immediately adjacent of inadequate capacity. This section of the main canal will be in a deep cut and largely rock. Much of the remaining 64 miles of canal is in rocky country with capacities decreasing from 1,600 second feet to 400 second feet. The last 3 miles of the canal pass through a basaltic region devoid of soil where a concrete flume 11 feet wide and 7 feet high will be required.

### WATER SUPPLY AND DRAINAGE

The water supply will be obtained from Snake River, the natural flow of which in the irrigation season will be fully used, in low years, by rights initiated in advance of this project. The project lands will, therefore, have to depend on water stored in the American Falls reservoir. Four hundred thousand acre feet, or 5 acre feet of water for each acre of land, have been set aside for this purpose. The storable winter flow, together with flood waters storable in most years and in part carried over from year to year, will cause the reservoir to fill, except in the very dry years. Irrigation shortages will be infrequent and of minor extent.

Only minor drainage works are likely to be required.

### CONSTRUCTION COST

Main Canal .....	\$3,800,000
Miscellaneous minor features.....	400,000
Total .....	<u>4,200,000</u>

To this will have to be added at a later date \$800,000 for the construction of laterals to irrigate the public land which can be supplied by gravity from this canal. Storage in American Falls reservoir at a cost of \$2,000,000 has already been provided.

### CROPS

On the partially irrigated lands to be included in the project and on other lands in this locality, the prevailing crops are alfalfa, sugar beets, corn and grain, with an estimated average annual crop production under present conditions of \$35 per acre. All of the lands lie within reasonable distances of the main and branch lines of the Union Pacific railway system. Over 400,000 acres of irrigated land are now successfully cultivated in the immediate vicinity.

### LAND PRICES

Under the reclamation laws no more than 160 acres of patented land in single ownership can receive a Government water supply, such excess areas in private ownership being denominated "excess



lands." The excess lands of this project have been appraised by a competent board. The contract with the district and contracts with owners of excess lands require that excess lands be disposed of at or below the appraised valuations. Settlers who are allotted public land will be required to have some capital and farming experience. Application of these principles to this project will tend to eliminate some of the obstacles to farm development of the past.

The lands now under irrigation are fairly well improved and are growing alfalfa, clover, small grains, tame irrigated pastures and potatoes. High-priced crops are not extensively grown because of a lack of late water. Carey Act construction charges on these lands are fully paid. Operation and maintenance charges are 95% paid. This area is well served by towns, railroads, roads, schools and churches. Considering the hardships which these people have encountered because of a lack of water, their morale and social conditions are excellent.

About 16,000 acres of new lands are interspersed with the improved and cultivated lands of this district. Lateral ditches to irrigate this land are built, and some of it was prepared for irrigation when it was, through court action, excluded from the district because of an inadequate water supply. With this water supply provided, the location of these lands in a settled community, with part of the improvements made, gives confidence that they will be settled and irrigated within a reasonable time after water is supplied, and that the irrigation charges will be paid within the time limits fixed by the reclamation laws.

The 20,000 acres of public land to be irrigated from this canal are fertile, but are unimproved and only about half the area has topography permitting group settlement and community development. The other half, about 10,000 acres, has an uneven surface with float rock and lava outcrops. Many farm units will be isolated, making road building and lateral construction costly. These units should have from 120 to 160 acres of irrigable land and should be used for sheep and cattle raising or dairying. They will require farmers having local experience. To insure the settlement and development of this public land and the payment of construction charges, roads should be built in advance of settlement and a part of the area in the section having isolated farms should be prepared in advance for irrigation. There is no provision in law at present for doing these things, nor any responsible guarantee that they will be done from local sources. The plans for this canal do not, therefore, contemplate the construction of laterals for this area until settlement is assured. The main canal would be built of ample size to provide water, but the expenditure of \$800,000 for laterals will be withheld until there was satisfactory assurance of a demand for the land.

#### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land embraced in the project is of good fertility. Good yields of all crops grown in this locality are assured. With care

in the selection of settlers, with farms suitably improved and equipped, success in farming may be anticipated.

### PAYMENT OF CHARGES

As before stated, all lands to be benefited by this construction have been organized into the American Falls Reservoir District No. 2 and a satisfactory contract has been prepared and voted by the owners of the private land, confirmed by court. It guarantees the repayment of a maximum of \$7,500,000. The benefits of this development have been apportioned to the different classes of land and duly confirmed by court with the new lands assessed to pay \$94 an acre, and the old lands to be provided with a partial water supply at \$51.70 an acre, this representing the cost of lands in the Carey Act both above and below the proposed canal.

Under the contract the district is obligated to repay construction costs on new lands within a period of 40 years and for the lands having a partial water supply within a period of 20 years. This would make the average annual payments on construction costs for new lands \$2.35 per acre per year and on the lands now irrigated and having a partial supply \$2.60 per acre per year. These costs, together with costs for operation and maintenance of the project system and other district costs, will make an annual water charge of around \$4.50 per acre. This is higher than prevailing charges on projects of similar productiveness after readjustment of repayment contracts under the act of May 25, 1926. In view, however, of precautions being taken to curb land speculation, to obtain qualified settlers, and to create conditions which will hasten and cheapen the improvement of farms, it is believed the charges can be met.

It will be seen that this schedule provides for the return of the cost, not only of the new work to be done, but also of storage in American Falls reservoir which has been provided by the Government at an expense of \$2,000,000, and upon which the United States is now receiving no return and will receive no return until an irrigation system is constructed for the utilization of the stored water. The returns from the 20,000 acres of new land may be somewhat delayed, awaiting settlement, as the repayment does not begin until after the land is entered. As an offset to this, the laterals for the new land, estimated to cost around \$800,000 will not be constructed until prompt settlement and profitable cultivation are assured.

### FINDING REGARDING FEASIBILITY OF PROJECT

It is believed that this development will mean a gain in income to the Reclamation Fund, and that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

In view of the urgent need of an increased water supply for an area of 80,000 acres, and the suitability of the 16,000 acres of

new lands for immediate successful settlement, I recommend the approval of the Gravity Extension Unit of the Minidoka project, and the issuance of authority to proceed with its construction.

Very truly yours,

(Signed) HUBERT WORK.

Approved July 3, 1928.

(Signed) CALVIN COOLIDGE,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, September 6, 1935.*

THE PRESIDENT,  
THE WHITE HOUSE.

MY DEAR MR. PRESIDENT: The evolution of irrigation in the Snake River Valley in Idaho is typical of most of the arid sections of western United States. Inexpensive irrigation works were constructed first and development was based upon the natural flow of rivers available during seasons of heavy runoff. As years went on, development of the farms brought more and more irrigable land under cultivation and created a demand for ever-increasing water supplies.

Under these circumstances, cycles of years of subnormal precipitation in the river watersheds—recurring at irregular intervals—caused much suffering and loss of property and demonstrated the need for storage works to equalize the river flow over years of high and low precipitation.

Jackson Lake reservoir, on the head waters of the South Fork of Snake River, and American Falls reservoir, in the lower Snake River Valley, have provided storage capacity for all irrigated lands of the Snake River Valley in southern Idaho except those lands now supplied with water for irrigation from the North Fork of Snake River. These lands, served by existing canals, and containing an area of approximately 100,000 acres, are sorely in need of storage to supplement their inadequate natural flow rights in the river. They have been organized into an irrigation district through which they stand ready to become obligated for the repayment of the cost of the storage works in installments over a period of 40 years.

Preliminary investigations have disclosed suitable reservoir sites and works proposed are estimated to cost not to exceed \$4,000,000 for several reservoirs and for a canal from Henry's Fork to the Teton River, the advance estimate of cost of the Island Park Reservoir being not to exceed \$2,000,000.

Under date of August 24, 1933, I approved an allotment of \$4,000,000 for the construction of such storage works on the North or Henry's Fork of Snake River, Idaho, and its tributaries, \$2,000,000 of which is now available. The storage water proposed to be developed thereby will be available for use upon about 100,000 acres of land under existing canals in the Fremont-Madison Irrigation District as now organized, and the irrigable area served by the proposed storage works may be largely increased if both the Teton Reservoir and the Island Park Reservoir are adopted for construction. Most of these lands are already under cultivation and able to start the repayment of cost of such storage immediately.

It is proposed to have the contract for repayment of such cost follow the provisions of the act of June 17, 1902 (32 Stat., 388) and acts amendatory thereof or supplementary thereto, and particularly the act of February 21, 1911 (36 Stat. 925) and the act of June 16, 1933 (48 Stat. 195), and the contract will contain provisions aimed to reduce or prevent speculation in lands having the benefit of such storage water.

I find that the project is feasible and that the lands to be benefited by such storage are well adapted for actual settlement and farm homes, and that the agricultural productivity of such lands will in all probability return to the United States the cost of the development.

The construction of the works as proposed will furnish employment to large numbers now unemployed and further the purpose and intent of the act of Congress of June 16, 1933.

The Parker Dam decision of the Supreme Court of the United States (*United States v. State of Arizona*) indicates that Federal irrigation projects constructed under the provisions of the act of June 16, 1933, must be directly authorized by you under Section 4 of the act of June 26, 1910, 36 Stat., 835, and this report is made in accordance with said act of 1910 and under subsection B of section 4 of the act of Congress of December 5, 1924 (43 Stat., 701).

I recommend that the project be approved and that necessary authority be issued to this Department to proceed to contract for the construction of such works and for the repayment of the cost thereof by the landowners benefited.

Sincerely yours,

(Signed) CHARLES WEST,  
*Acting Secretary of the Interior.*

Approved September 20, 1935.

FRANKLIN D. ROOSEVELT,  
*President.*

# MIRAGE FLATS PROJECT

THE SECRETARY OF THE INTERIOR,  
*Washington, March 30, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contains an item of \$5,000,000 from which allocations may be made by you:

For construction, in addition to labor and materials to be supplied by the Works Progress Administration, of water conservation and utilization projects, \* \* \* in the Great Plains and arid and semiarid areas of the United States, \* \* \*

All expenditures from the appropriation, and as much of the expenditures from the Work Projects Administration fund as the President determines, are to be considered reimbursable. Hereinafter the appropriation item will be termed the "1940 Water Conservation Appropriation."

The Mirage Flats irrigation project in Dawes and Sheridan Counties, northwestern Nebraska, near the town of Hay Springs, is the type of project that is contemplated to be constructed under the provisions of this item. The project is one of those recommended for construction by the Northern Great Plains Committee in its 1938 report to you, and I concur in this recommendation.

The lands to be irrigated, comprising 12,000 acres, are situated on the north bank of the Niobrara River, about eleven miles south of Hay Springs. The soil is a fertile silty to sandy loam and is capable of furnishing good yields of hay, grain, potatoes, and similar crops. State highways cross the project, and U. S. Highway No. 20 and the main line of the Chicago and Northwestern Railroad pass through Hay Springs, thus providing access to markets.

The area has been dry-farmed for half a century, but crop losses have been heavy in the dry years. Irrigation works were partially built by the farmers at one time but failed due to poor construction and lack of storage facilities. A majority of the land holdings is in tracts of 160 acres or less and should not be reduced in area. There are some larger tracts that should be subdivided and this arrangement should be obtained either through a contract with an irrigation district providing for the sale of excess holdings or the large holdings should be purchased and

resold in smaller blocks. A plan of development now being contemplated is to furnish irrigation water for approximately one-half of each holding. This would foster the most efficient use of the limited water supply, result in a combination of irrigated and dry farming well adapted to the locality, and would maintain the fertility of twice the area of a solidly irrigated block.

The plan of irrigation is to construct a diversion dam on the Niobrara River at the upper end of the project, a main canal approximately fifteen miles long, and a system of laterals, sublaterals, and farm ditches. An earth and rock fill dam would be built on the river about nine miles above the diversion dam to provide approximately 30,000 acre feet of water storage. Construction would also include the necessary rough land leveling.

The estimated cost of construction, including the building of all irrigation structures, rough land leveling, and resettlement costs, is \$2,560,000. The experience of the Bureau of Reclamation on projects which are similarly situated indicates that water users will be able to repay \$985,000 of this amount over a period of forty years and, in addition, to carry the annual costs for operation and maintenance. This latter sum should be obtained from the 1940 Water Conservation Appropriation. The remaining amount of \$1,575,000 required to construct the project is expected to be provided by the Work Projects Administration. A tabulation is attached in which is shown a tentative breakdown of expenditures from the two funds. The estimate of expenditures from Work Projects Administration funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to fiscal year 1940. The efficiency with which the work can be constructed under the new regulations is unknown. Therefore, the estimate of Work Projects Administration funds required may need revision at some later date.

I recommend that the Bureau of Reclamation undertake the reconstruction of the Mirage Flats project; that appropriate bureaus of the Department of Agriculture conduct the land development program and the arrangements for settlement, repayment, and project operations; and that the National Resources Planning Board assist in the planning and coordinating field.

I recommend that an allocation of \$985,000 from the 1940 Water Conservation appropriation be made to the Department of the Interior, Bureau of Reclamation and that the Work Projects Administration be requested to give earnest consideration to the project applications which will be filed by the Bureau of Reclamation to obtain the remaining \$1,575,000 needed for the construction of the Mirage Flats project.

The Bureau of Reclamation will reimburse the Department of Agriculture and the National Resources Planning Board for all services provided by those two agencies in connection with the construction of the project through transfers or advances from the funds made available to the Bureau of Reclamation. Letters containing the comments of the Department of Agriculture and the Work Projects Administration are enclosed.

It is contemplated that actual construction will not be under-

taken until the Department of Agriculture has made sufficient progress in an effort to obtain control of the large holdings, at prices which do not exceed appraised valuations, to insure the successful operation of the project. The time required for the construction of the project will depend largely on the availability of relief labor and may extend to three or four years.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved April 26, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

THE SECRETARY OF THE INTERIOR,  
*Washington 25, D. C., June 15, 1944.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: There is presented herein, for your approval, a proposal to complete and to bring into operation the Mirage Flats irrigation project in Dawes and Sheridan Counties, Nebraska, under the provisions of the Act of July 16, 1943 (Public 152—78th Congress), which amended the Water Conservation and Utilization Project Acts of August 11, 1939 (53 Stat. 1418) and October 14, 1940 (54 Stat. 1119). The construction of this project, which involves the development of a new water supply for 12,000 acres of land, was approved by you on April 26, 1940, under the provisions of the Interior Department Appropriation Act of 1940. Copies of the original approval papers are attached.

#### STATUS OF CONSTRUCTION

The major construction feature of the project is a rolled earthfill dam, which is now about 60 percent complete. Most of the concrete had been placed in the outlet works structure and spillway, and the embankment of the main dam section had been placed to within eight feet of crest elevation in some sections, when the War Production Board ordered the work halted on December 12, 1942. Practically all of the construction equipment was left at the site and is available to complete the work. Much of the critical construction material is on hand. Future construction would require the purchase of about 488 tons of steel, wire rope, nails, repair parts for construction equipment, and similar items which, it is estimated, would cost approximately \$46,000. A considerable amount of non-critical construction materials would have to be purchased. The Facilities Committee of the War Production Board approved the project for construction on January 29, 1944, and assigned it an AA-3 priority rating. The Bureau of Reclamation began work as soon thereafter as weather

conditions permitted and is now carrying on construction of the dam with Government forces.

### ESTIMATED COST AND FINANCING PROCEDURE

When you approved this project for construction on April 26, 1940, it was estimated that the total cost of construction by the Bureau of Reclamation would be about \$2,200,000, of which the Work Projects Administration would furnish \$1,385,000 in the form of labor and some materials. The balance of the cost, \$815,000, was expected to be repaid by the prospective irrigators, this amount being regarded as within their ability to repay over the statutory repayment period. Advancing costs during the period following your approval, delays in shipping and transportation which retarded delivery and added to the overhead costs, the loss of trained personnel, the liquidation of the Work Projects Administration and the Civilian Conservation Corps, and finally, the complete halting of a well-functioning construction organization were all factors which contributed toward making it impossible to complete the project within the original estimated costs. It is now estimated that the total cost of the project when completed would approach \$3,100,000.

Of the total cost, \$815,000 have been allotted from the appropriation for Water Conservation and Utility Projects. The Work Projects Administration furnished labor and materials to the value of \$346,119 out of its originally estimated contribution of \$1,385,000, and the Civilian Conservation Corps spent \$8,247 before being removed from the project by the Army. If circumstances require, it is proposed to complete the project by supplementing the present free labor with labor to be supplied from the local prisoner of war camp either directly to the Bureau or to contractors. It is believed that the proposed construction could be completed if \$1,906,000 were made available for the work. The financial arrangements proposed for the completion of the Mirage Flats project are as follows:

Total estimated cost.....	\$3,100,000	
Expenditures from General Fund.....	\$670,000	
Unencumbered balance of General Fund.....	145,000	
Contributed by Work Projects Administration....	346,119	
Contributed by Civilian Conservation Corps.....	8,247	
Value of stores in stock.....	25,000	
Transfer value of equipment upon completion of work.....	25,000	
Total .....	1,219,366	
	Call it	1,219,000
Estimated balance required in lieu of anticipated contributions .....	1,881,000	
Overallotment for transfer value of equipment which will be credited upon completion of work.....	25,000	
Estimate of funds required.....	1,906,000	

Note:—The above figures are estimates and not limitations. If you approve the continuation of construction, it is proposed



to allot \$1,906,000 to this project from the appropriation for Water Conservation and Utility Projects. This sum represents advances in costs brought about by the war, and the difference between funds anticipated but not received from the Work Projects Administration and Civilian Conservation Corps. Construction would proceed in accordance with Section 5 of the Act of July 16, 1943 (Public 152—78th Congress). Sufficient funds to carry out the functions of the Department of the Interior have been appropriated and are now available for allotment.

#### CONSULTATION WITH THE WAR FOOD ADMINISTRATOR

On March 2, 1943, I transmitted to the Secretary of Agriculture, for his consideration, an optimum five-year program covering the production of certain critical war foods in which the bureaus of the Department of the Interior had special administrative responsibilities. The Mirage Flats project was among the irrigation projects recommended for consideration and on May 15, 1943, detailed information was submitted to the War Food Administrator. On July 12, the War Food Administrator recommended this project to the War Production Board. However, the Board disapproved the project on August 12, 1943. After further investigation the War Food Administrator presented additional facts to the War Production Board on December 12, and the Board approved the project for construction on January 29, 1944.

#### FINDINGS AND RECOMMENDATIONS

Total reimbursable costs were fixed at \$985,000 in the finding of April 26, 1940, made pursuant to the War Conservation and Utility Projects item contained in the 1940 Interior Department Appropriation Act. Of this total, \$170,000 represented repayment for the settlement and development work of the Department of Agriculture, and \$815,000 represented repayment for construction to be accomplished by the Bureau of Reclamation. Within the limits of the authority of the Act of July 16, 1943, I shall make adjustments in the project construction costs to the extent necessary to keep the reimbursable costs in conformity with that finding.

I have consulted with the War Food Administrator, acting in the stead of the Secretary of Agriculture, concerning the justification of this project. Based on these consultations and on the information available to me concerning the project, I find that the proposed construction is justifiable as an aid in the production of needed agricultural products. A letter addressed to you from the War Food Administrator is enclosed in which is indicated the proposed participation of the Department of Agriculture.

I recommend that you approve this report and finding, and that you reiterate the recommendations that you approved on April 26, 1940. Since this project was originally approved under

the terms of the \$5,000,000 item in the 1940 Interior Department Appropriation Act, it is contemplated that the project will be transferred to the Department of Agriculture upon the completion of the construction by the Bureau of Reclamation, and that the Department of Agriculture will carry on land development, settlement, and all of the other necessary project operations, including the collection of repayment charges for construction as well as land development and settlement activities.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

JULY 13, 1944.

Approved with understanding that decision as to transfer of works constructed by Bureau of Reclamation shall be postponed:

(Signed) FRANKLIN D. ROOSEVELT.

# MISSOULA VALLEY PROJECT

OFFICE OF THE SECRETARY,  
*Washington, October 20, 1943.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Missoula Valley project involving the irrigation of approximately 2,100 acres of land in Missoula County, Montana, and pursuant to the authority of the Act of August 11, 1939 (53 Stat. 1418), as amended, (herein called the Act) I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

## PROJECT PURPOSE

The primary purpose of the proposed project would be to develop a water supply for 900 acres of new land, and a supplemental supply for 1,200 acres which are now inadequately irrigated. The former area, known as the Big Flat Unit, is situated on the west side of the Clark Fork River about 7 miles west of the City of Missoula, Montana, while the other tract, known as the North Side Low Lift Unit, lies northwest of the City of Missoula, and north of the existing Flynn Ditch, which draws its supply from the Clark Fork River. The immediate development of this project would provide a means of increasing the production of agricultural products now vitally needed. After the war it is believed that the project would contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing new homes and opportunities for a few additional farm families.

## THE PLAN

*Big Flat Unit.*—A simple headgate structure on the Bitter Root River would direct the river water into a gravity canal through

which the water would be carried for a distance of about 6 miles to the project area. A concrete pipe conduit near the end of the canal would be constructed on a short stretch of steep rocky hillside. Drainage facilities would be constructed if required. Other structures which would be required for the development would consist of a siphon, and the usual turnouts, wasteways, small bridges, and similar features.

*North Side Low Lift Unit.*—A supplemental supply would be furnished to this unit by enlarging and reconditioning existing channels leading from the Clark Fork River. Water would be pumped up and over an escarpment into a canal which would be constructed to connect with the existing distribution system. Some drainage is also contemplated. Structures required for this unit would consist of a small pumping plant, and the usual turnouts, wasteways, small bridges, and similar features.

The availability of sufficient electric power is assured, and construction of the entire project would be undertaken as soon as practicable. In the event that pumping equipment cannot be obtained, the Big Flat Unit would be constructed first and work on the other unit would be undertaken as soon as conditions permit.

An adequate water supply is believed to be available for all the lands which would be benefited. An existing power development may be affected somewhat during periods of extremely low summer flow, but adverse results would be offset by increased winter discharge as a result of accretions from irrigation return flow. The affected company has informally stated that it is willing to enter into an agreement which will permit the project to go forward.

Changes in these general plans may be found necessary, but it is expected that any changes will be of a minor nature and will neither alter the general objectives of the project nor result in material departures from the present findings, predicated on the present plans for the project.

#### PARTICIPATION OF FEDERAL AGENCIES

The Bureau of Reclamation would construct the pumping plant, the headgate structures, siphon, canal and drainage systems, and other necessary and appurtenant structures, and, subject to change, also would operate the system after it is built. The Bureau would negotiate contracts with the water users for the repayment of the reimbursable construction charges.

The War Food Administrator, acting in the stead of the Secretary of Agriculture, has transmitted a letter which is enclosed, indicating his approval of the project and the extent of the proposed participation by the Department of Agriculture. From this letter it will be noted that the War Food Administrator concurs in my belief that the construction would be justifiable as an aid in the production of needed agricultural products.

Services, labor, materials, supplies, equipment, and similar items which may become available through the Selective Service

System, Prisoner of War Camps, or other Federal agencies may be utilized under the terms and conditions fixed by such agencies, if, in my opinion, such use would effectively expedite construction of the project.

#### PARTICIPATION OF NON-FEDERAL AGENCIES

Local interests requesting the development of the project indicate that they would form suitable organizations in order to contract with the Government for the repayment of that part of the construction cost which has been determined to be reimbursable. The water users benefited by the work of the Department of Agriculture would be required to repay the reimbursable money expended in that work in accordance with the Act. Aid which may be offered by the local interests probably would be accepted.

#### ESTIMATED COST AND FINANCING PROCEDURE

The total cost to this Department would be \$250,000. The Department of Agriculture would undertake activities pursuant to Section 5 of the Act which are estimated to cost \$237,000. The activities of both Departments would be financed with monies heretofore appropriated for Water Conservation and Utilization Projects. The total expenditure is estimated to be \$487,000.

It is estimated that the water users can repay \$103,000 of the works to be built by the Bureau of Reclamation. All net project costs in excess of this amount would, as authorized by the Act, be excluded from the project construction cost and be treated as nonreimbursable.

It is estimated that the water users can repay \$198,000 of the costs of the work to be performed by the Department of Agriculture. All costs in excess of this amount would, as authorized by the Act, be treated as nonreimbursable.

In addition to the above estimated costs, over allotments should be provided for the Department of the Interior and the Department of Agriculture in the sum of \$52,000 and \$15,000 respectively. These sums represent the estimated transfer value of equipment which would be returned to the project upon completion of construction.

Sufficient funds for these purposes have been appropriated and are now available for allotment.

#### SIZE OF FARM UNITS

Since the exact size may vary over the project area in accordance with the varying conditions of the project lands, limitations on the various holdings will be established after more complete and final surveys have been made. It now appears that ultimately the proper size holding would be about 160 acres of irrigable land. In this connection, considering the problems attendant on farm operation during the war and the need for the greatest possible production of agricultural products with the available

farm labor supply, I expect to determine that for the duration of the war the limitations on the delivery of water will not be applicable to existing land holdings which exceed in area the maximum to be established for any farm unit.

### FINDINGS, CERTIFICATIONS, RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

1. The proposed project has engineering feasibility.
2. The total estimated cost is \$250,000.
3. The estimated cost which properly could be allocated to irrigation is \$250,000.
4. The water users probably could repay \$103,000 in accordance with the requirements of Section 4 of the Act.
5. No part of the estimated costs properly could be allocated to municipal or miscellaneous water supply or power.
6. No part of the estimated cost properly could be allocated to the irrigation of Indian trust and tribal lands.
7. No part of the estimated costs properly could be allocated to flood control.
8. The proposed construction is justifiable as an aid in the production of needed agricultural products.

If you approve the project, it is planned to proceed immediately with matters relating to land acquisition, water rights, and repayment contracts so that the requirements of the statutes may be met as promptly as possible. The project has heretofore been submitted to the War Production Board for clearance for commencement of construction and procurement of materials needed for construction.

On the basis of the foregoing report and findings, I recommend that you approve this project for construction.

Sincerely yours,

(Signed) ABE FORTAS,  
*Acting Secretary of the Interior.*

THE WHITE HOUSE.

Approved May 10, 1944.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# MISSOURI RIVER BASIN PROJECT<sup>1</sup>

BUREAU OF RECLAMATION,  
*Denver, Colorado, April 14, 1944.*

From: Board of Review  
To: Commissioner  
Subject: Report on Conservation, Control, and Use of Water Resources of the Missouri River Basin.

## BOARD OF REVIEW'S REPORT TO THE COMMISSIONER

1. Pursuant to instructions in your letter of February 2, 1944, the undersigned convened as a special board of review in Denver, Colorado, April 10 to 13, 1944, to consider the report of April 1944 on the Conservation, Control, and Use of Water Resources of the Missouri River Basin, prepared by the Bureau of Reclamation staff of region 6, assisted by consultants, and representatives of other Government agencies. The results of our review of the report are respectfully submitted herein.

\* \* \* \* \*

## INITIAL CONSTRUCTION PROGRAM

23. \* \* \*

## RECOMMENDATIONS

It is recommended:

(a) That the general plan for the development of the basin as contained in the report be approved subject to such modifications and changes as may be indicated, from time to time, as the plan is effectuated.

(b) That all works that may be authorized under the approved plan be constructed, operated, and maintained by the Bureau of Reclamation under the direction of the Secretary of the Interior wherever the dominant function of such works is other than navigation and flood control.

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<sup>1</sup> The project is being constructed in cooperation with the Corps of Engineers.

(c) That the Bureau of Reclamation under the direction of the Secretary of the Interior make all arrangements for the sale and distribution of electric energy generated at all hydroelectric developments hereafter constructed by any Federal agency within the basin as defined in the report, and be authorized to construct, operate, maintain, and improve such electric transmission lines and substations as it finds necessary or desirable in connection therewith.

(d) That the initial construction program as hereinabove presented be adopted and that an appropriation of \$200,000,000 be authorized for the prosecution of construction work on the first stage of the program and for the continuation of investigations on the general plan of development.

(Signed) E. B. DEBLER,  
*Chairman, Director of Branch  
of Project Planning.*

S. O. HARPER,  
*Chief Engineer, Director of Branch  
of Design and Construction.*

H. F. MCPHAIL,  
*Director of Branch  
of Power Utilization.*

W. F. KUBACH,  
*Director of Branch of Fiscal  
and Administrative Management.*

D. S. STUVER,  
*Assistant Director of Branch  
of Operation and Maintenance.*

BUREAU OF RECLAMATION,  
*Washington, April 28, 1944*

The SECRETARY OF THE INTERIOR.

SIR: In accordance with section 9 of the act of August 4, 1939 (53 Stat. 1187, 43 U. S. C. 485), I transmit this report on Conservation, Control, and Use of the Water Resources of the Missouri River Basin.

I recommend it to you for your approval and for submission to the Congress, after submission to the Bureau of the Budget in accordance with section 4 of Executive Order 9384, and to the President in conformity with the 1939 act.

The reclamation plan proposes a total of 90 reservoirs with a combined capacity of 45,700,000 acre feet, most of the reservoirs on tributaries of the Missouri for use in irrigation, flood control,



and power development, but two-thirds of the reservoir capacity on the main stream for use in flood control, aid to navigation, power development, and irrigation.

When fully developed, the plan would provide water for the irrigation of 4,760,400 acres of dry land, and supplemental water for 538,000 acres of land now irrigated but not assured adequate water in years of low run-off. Seventeen power plants, in the completed power system, would supply seasonal power for pumping water for irrigation, and nearly four billion kilowatt-hours of firm power, annually, for domestic, commercial, and industrial uses.

The irrigation of numerous areas scattered widely over the Northern Great Plains and over other semiarid sections of the Missouri River Basin would add to an unavoidably precarious dry-farm and grazing economy the stabilizing influence of lands with insured crops and high yields.

The droughts of the last decade cost governmental agencies, principally Federal, a total of \$1,246,557,087, and these expenditures were inadequate to the needs, since tens of thousands of families nevertheless were forced to migrate from their abandoned homes. These expenditures are roughly equal to the cost of full utilization of the waters of the Missouri River system. While it is not contended that full use of these waters will eliminate drought losses, it will reduce the catastrophic effects and prevent much of the human suffering.

I have submitted the report to the agencies of the Department of the Interior which have interests in the waters of the Missouri River Basin and have their approval or their comment, which is attached. I have submitted the report to the Interagency River Basin Committee, in accordance with the quadripartite agreement of December 29, 1943. I have the comment of the Corps of Engineers, which is also attached.

The Assistant Commissioner of the Office of Indian Affairs, on April 26, 1944, said with regard to the recommendations made in the report dated April 14, 1944, of the Board of Review, that the Office of Indian Affairs should construct, operate and maintain irrigation features including dams that predominantly serve Indian lands. I concur in the opinion, and I am sure that the members of the Board of Review will regret their oversight in this connection. The report should recognize the authority and responsibility of the Office of Indian Affairs in the matter of irrigating Indian lands.

The Chief of Engineers, War Department, in his letter of April 25, 1944, observed that the Reclamation plan included tributary reservoirs that would fit the plan presented by the Corps of Engineers in House Document 475, Seventh-eighth Congress, second session, and commented that modifications made in the proposals for the Yellowstone, Big Horn, Kansas, Smoky Hill, and Republican River Basins could be coordinated in advance of construction by further cooperation by the Corps of Engineers and the Bureau of Reclamation. With regard to the main stem of the Missouri River, however, the Chief of Engineers noted that the

reclamation plan contemplated 10,250,000 acre-feet less storage than had been proposed by the Corps, and concluded that a high dam at the Garrison site, which was not included in the reclamation plan, is necessary. The main stem dams, the Chief of Engineers said, should be built, operated, and maintained by the Corps, and the tributary dams should be built, operated, and maintained by the agency with the dominant interest. Flood control storage should be utilized in accordance with regulations prescribed by the Secretary of War, and irrigation storage in accordance with regulations of the Secretary of the Interior, he proposed. The Chief of Engineers noted that irrigation of the Souris area, as proposed in the Reclamation plan, would require diversion of waters from the Missouri River, and he advised further study of this undertaking pending fulfillment of existing and foreseeable needs within the Basin. He questioned the computations in the reclamation report of benefits and allocations.

I agree with the Chief of Engineers that details can be worked out satisfactorily through cooperation as the projects are constructed on the tributary streams. I agree that the agency with the dominant interest should construct the dams and other works in the Basin, and I agree that the main stem storage dams should be constructed by the Corps, owing to their close relationship with flood control and navigation. The Reclamation plan provides a storage capacity in main stem reservoirs of 24,950,000 acre-feet, which is 10,250,000 acre-feet less than that proposed by the Corps, but when considered together with more than 10,000,000 acre-feet of storage provided upstream, this amount is believed to be sufficient to provide full flood protection and ample storage for regulation for navigation. However, if continuing studies by the Corps and the Bureau of Reclamation should indicate the need of additional storage in the main stem after the high dam at Oahe is built, then there is and should be ample opportunity to provide the additional storage needed. The Oahe Dam, as proposed, would provide a reservoir of a capacity of 19,600,000 acre-feet as against the Garrison Dam proposed by the Corps which would provide a reservoir of only 17,000,000 acre-feet. In any event, one of these would constitute the initial flood-control facility. It would appear that the Oahe Dam would be more desirable from the flood-control standpoint, as it is also from the irrigation point of view.

The regional report of April 1944 is covered by the report of April 14 of the Board of Review. I approve the findings, the comment, and the recommendations made in the report of the Board of Review.

I find that the proposed development of the Missouri River Basin is needed, as conclusively shown in the report. The plan has engineering feasibility. The ultimate cost is estimated at \$1,257,645,700, and the annual benefits of the completed development would be 2.57 times the annual costs. The annual benefits would be as follows:

Irrigation .....	\$130,000,000	Navigation .....	\$4,165,000
Power .....	17,141,000	Municipal water .....	500,000
Flood control .....	16,500,000		

Irrigation would be expected to repay in 40 annual payments \$298,000,000. Power revenues in 50 years would repay \$423,100,000, and municipal water users would repay \$20,000,000.

The initial construction proposed would require \$200,000,000 and would be dominantly for irrigation and power. It includes none of the features that would be constructed by the Corps of Engineers in the development of the basin, but it would complement the flood-control construction proposed by the Corps.

I recommend that the construction, repayment, operation, and maintenance of the works proposed be in accordance with this report. I recommend the approval and authorization of the initial stage for construction after the war substantially in accordance with this report, but with such modifications by the Secretary of the Interior and the Commissioner of Reclamation as may be required to meet developing needs.

Respectfully,

(Signed) H. W. BASHORE,  
*Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, May 1, 1944.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: There is transmitted herewith my report on the Missouri River Basin, which is the letter of April 28, 1944, of the Commissioner of Reclamation and its attachments, which I approve.

The report contemplates utilization of the waters of the Missouri River beneficially for multiple purposes in the stabilization of the agriculture and economy of this vast basin which includes the Northern Great Plains, where drought periodically deals devastation. The maximum degree of stabilization can be obtained only through full utilization of the waters of this river system.

The construction proposed in this report would be complementary, for the most part, to that recently suggested by the Secretary of War for flood control on the Missouri River. The two plans, while not identical, apparently can be successfully coordinated.

The initial stage proposed in this report would involve expenditures estimated at \$200,000,000. The economic and human gains that can be expected will amply justify this step. The plan has

engineering feasibility. Water users, rural and urban, would be expected to repay, in accordance with their ability and the benefits extended to them, parts of the costs, and I find that they probably can meet the charges indicated. Power users would be expected to repay additional parts of the costs. It reasonably can be expected that these returns to the United States Treasury will be effected. Flood control and navigation allocations would be nonreimbursable. Substantial and material benefits would accrue through recreational use of the waters and facilities proposed; through their use in fish and wildlife conservation; through pollution abatement, silt control, and the recharge of lakes and ground waters. These are not assessable in monetary terms, and no repayments are contemplated from them.

I find desirable and feasible the development of the Missouri River Basin in accordance with this report on the Conservation, Control, and Use of the Water Resources of the Missouri River Basin, and I recommend authorization for construction after the war of the initial stage in accordance with the report and as contemplated in Section 9 of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
*Washington, May 4, 1944.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: I have your letter of May 1 transmitting a copy of the report entitled "Conservation, Control, and Use of Water Resources of the Missouri River Basin."

I am not now able to advise you, because of the need for further consideration of certain recommendations of the proposed report, as to the relation to the program of the President of the various recommendations therein.

Since I am advised, however, that the congressional committees having jurisdiction of pending legislation, to which these recommendations relate, are contemplating early consideration of such legislation, I am writing to say that this office would, of course, have no objection to your making the report immediately available for the consideration of these committees. In doing so, the committee should be informed, I think, that you have not received

from this office advice as to the relation of the report recommendations to the program of the President.

Very truly yours,

(Signed) HAROLD D. SMITH,  
*Director.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1946

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1946, and for other purposes. (Act July 3, 1945, 59 Stat. 338, 343, Public Law 123, 79th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1946, namely:

\* \* \* \* \*

### MISSOURI RIVER BASIN

Missouri River Basin (reimbursable): For the partial accomplishment of the works to be undertaken by the Secretary of the Interior, pursuant to Section nine of the act of December 22, 1944 (Public Law 534), \$3,200,000, to remain available until June 30, 1947: *Provided*, That this appropriation shall be expended, either independently or through or in cooperation with existing Federal and State agencies, only for detailed surveys, preparation of plans and specifications and the performance of other work, preliminary to construction of the initial stages, and for the continuation by the Bureau of Reclamation of investigations on the general plan of development.

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1948

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1948, and for other purposes. (Act July 25, 1947, 61 Stat. 460, Public Law 247, 80th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated for the De-

from this office advice as to the relation of the report recommendations to the program of the President.

Very truly yours,

(Signed) HAROLD D. SMITH,  
*Director.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1946

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1946, and for other purposes. (Act July 3, 1945, 59 Stat. 338, 343, Public Law 123, 79th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1946, namely:

\* \* \* \* \*

### MISSOURI RIVER BASIN

Missouri River Basin (reimbursable): For the partial accomplishment of the works to be undertaken by the Secretary of the Interior, pursuant to Section nine of the act of December 22, 1944 (Public Law 534), \$3,200,000, to remain available until June 30, 1947: *Provided*, That this appropriation shall be expended, either independently or through or in cooperation with existing Federal and State agencies, only for detailed surveys, preparation of plans and specifications and the performance of other work, preliminary to construction of the initial stages, and for the continuation by the Bureau of Reclamation of investigations on the general plan of development.

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1948

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1948, and for other purposes. (Act July 25, 1947, 61 Stat. 460, Public Law 247, 80th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated for the De-

## CONTINUING WORK ON THE GENERAL PLAN OF DEVELOPMENT

- |                       |                            |
|-----------------------|----------------------------|
| 1. Big Horn Basin     | 9. Lower Platte Subbasin   |
| 2. Cheyenne River     | 10. Missouri-James Pumping |
| 3. Clarks Fork        | 11. Nilan                  |
| 4. Garrison Diversion | 12. Niobrara Subbasin      |
| 5. Helena Valley      | 13. North Platte Subbasin  |
| 6. Judith River       | 14. South Platte Subbasin  |
| 7. Kansas Subbasin    | 15. Three Forks            |
| 8. Little Missouri    | 16. Upper Marias           |

# MOON LAKE PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
Washington, November 1, 1935.

THE PRESIDENT,  
THE WHITE HOUSE.

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*) indicated that Section 4 of the Act of June 25, 1910, 36 Stat., 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Moon Lake project, Utah, is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924, 43 Stat., 701.

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902, 32 Stat., 388, and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new projects or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of November 29, 1933, I approved an allotment of \$1,500,000 for the construction of the Moon Lake Project, all of which is still available or has been expended toward the construction of the project. The water to be developed by the project will be used for the irrigation of privately owned lands already under irrigation in what is commonly known as the Uintah Basin. The

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<sup>1</sup>The *Moon Lake Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.



lands are under some nine or ten existing canal companies which have recently formed the Moon Lake Water Users' Association and which association has entered into a contract with the United States to repay the cost of the project.

The lands of the project were first settled in 1905 when the Uintah Basin was opened to entry. Most of the area in the basin west of the Ashley Valley is irrigated from the waters of the Uintah, Lake Fork and Duchesne Rivers. There are approximately 85,000 acres of private lands of which 65,000 acres will be benefited by the project. Indian lands in the vicinity of the project which control the prior water rights of all these three streams are fairly well irrigated in most years, while practically all of the private lands experience severe water shortages during the summer seasons of every year. It is the purpose of the Moon Lake Project to furnish an additional water supply for these private lands in order that the severe water shortages may be reduced or eliminated so far as possible.

The furnishing of additional water for the project lands will be accomplished by the construction of the Moon Lake Reservoir on the Lake Fork River for the storage of 30,000 acre feet of water, the construction of the Yellowstone feeder canal from the Lake Fork river to the Uintah river, a distance of 34 miles; the construction of the Duchesne feeder canal from the Duchesne river to the Lake Fork river, a distance of 22 miles; and the construction of the Midview reservoir. The capacity of this latter reservoir is 5,000 acre feet, but the plan of use contemplates that it will be filled twice each season.

The Moon Lake reservoir, which is now being constructed by contract under the allotment previously mentioned, will be used to furnish water during the middle and late summer months to the stockholders of the Association. The Duchesne feeder canal will be used to divert surplus water from the Duchesne river to the Indian lands in the vicinity of Arcadia and to the Lake Fork river. In both cases water will be furnished to Indian lands thereby making possible the diversion of a like quantity of Indian water by exchange to the higher lands of the Moon Lake Project, and thus make a more economical and advantageous use of the available water supply.

The Midview reservoir will be used in conjunction with the operation of the Duchesne feeder canal. The Yellowstone feeder canal will be used to divert water from the Lake Fork river to those lands of the project at present inadequately served by the Uintah river.

What is mentioned as Moon Lake project lands are lands which lie under certain existing canals owned by canal and irrigation companies which are participating in the repayment of the cost of constructing the project through and by subscribing for stock to the Moon Lake Water Users' Association.

Studies and investigations made by the Bureau of Reclamation indicate that the water supply is adequate for the purpose intended, that the construction of the dams and canals is feasible from an engineering standpoint, that the project can be built

within the allotment of \$1,500,000 which the Association has agreed to repay (although in the repayment contract the construction of all works except the Moon Lake dam were only contingently provided for) due to the fact that considerable of the work in the construction of the Duchesne feeder canal, Midview reservoir and the Yellowstone feeder canal is being done by CCC camps.

I find that the project is feasible, that the land watered thereby is adaptable for actual settlement and farm homes, that the lands are badly in need of an additional water supply, that the continued existence of the community depends upon the furnishing of an additional water supply as contemplated by the project, and that the project will probably return the cost thereof to the United States.

I recommend that the project consisting of the Moon Lake reservoir, Duchesne feeder canal, Yellowstone feeder canal and Midview reservoir, and which is already under process of construction, be approved, that any steps or action heretofore taken toward the construction of the same be ratified, and that authority be issued to this Department to proceed with the work and to make contracts and take any necessary action to construct and complete the project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# NESSON PROJECT<sup>1</sup>

WILLISTON, NORTH DAKOTA, SEPTEMBER 22, 1905.

CHIEF ENGINEER,

*United States Reclamation Service, Washington, D. C.*

SIR: We, the undersigned Board of Engineers, have visited and inspected the lands under survey and investigation in the vicinity of Buford, Williston and Nesson, Williams County, North Dakota. We have also carefully considered the result of the surveys made by Mr. P. M. Churchill, Engineer, and his assistants, and the investigations and computations for pumping machinery and devices by Mr. H. A. Storrs, and the coal investigations and reports made by Mr. H. R. Evans.

## BUFORD-TRENTON PROJECT

The land owners under this project organized a Water Users' Association and have subscribed to stock as shown in the attached supplement "A," 83 % of the private lands being subscribed.

## WILLISTON PROJECT

A petition for the development of an irrigation project by the Reclamation Service has been signed by the land owners in the vicinity as shown in the attached supplement "B." 88 % of the private lands are represented by such signature.

## NESSON PROJECT

A petition for the development of an irrigation project by the Reclamation Service has been signed by the land owners in the vicinity as shown in the attached supplement "C," 67 % of the private lands being represented.

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<sup>1</sup> The *Nesson Project* was found feasible under the original Reclamation Act prior to its amendments, but later reclassified as a secondary project.

## FINDINGS

We find the lands in these various projects to be of good quality, well adapted to irrigation, and surrounded by general conditions which we believe render them suitable for irrigation in accordance with the Reclamation Act.

The water supply for irrigating these lands will be from the Missouri River. The low grade of the river, being 8 ft. per mile only, makes it impossible to take out a canal line by gravity for irrigating these lands.

The presence in the immediate locality of lignite deposits in veins of from 4 to 11 feet in thickness extending over areas of many square miles and on unpatented Government land, makes the pumping with fuel-generated power feasible. If it proves uneasable to locate the power generating plants at the coal mines, the elevation of the veins will make transportation of the coal to the plants as they otherwise may be located entirely feasible, either by existing railroads with short spur extensions to the mines and pumping plants or by cheap electric or other transmission to be erected by the United States.

At Buford a railroad runs lengthwise through the tract. Wiliston is the division point of a transcontinental railroad. At Nelson, although the lands are situated from 9 to 12 miles from a railroad, river transportation is available and two parties of surveyors representing two different railroads are now locating lines in the immediate vicinity. A third railroad is also apparently heading toward this vicinity.

We believe the best policy for the Reclamation Service and the interests of the land owners will be to develop and construct irrigation works on the progressive system, putting in pumping plants and ditches for a portion of the land in each project, and extending and increasing both the pumping plants and ditches as rapidly as is consistent with economical construction, giving the land owners, especially those on the bottom lands now partially covered with timber and brush, an opportunity and time to prepare their lands for irrigation and all the people in the vicinity a chance to perform such of the work as they may be able in constructing the canals.

## ESTIMATES

We estimate, from the preliminary surveys and estimates made, that the cost of installing the power machinery and pumps and constructing the irrigating canals and laterals, will amount to approximately \$25.00 per acre, and the annual cost of administering, maintaining and operating the system to deliver two acre feet per acre, will amount to from \$1.00 to \$2.50 per acre per annum varying with the lift from about 30 to 100 feet.

## POLICY

We recommend the immediate development of plans in the office, for the location of pumping plants and canal lines to develop

the most satisfactory system for the irrigation of all the lands tributary to the project as surveyed, these canal lines and pumping plants to be designed and planned so that construction may be commenced at the earliest practicable date on an integral portion of the entire system in each project, for the irrigation of from 7,000 to 14,000 acres of land, with provision for increasing the pumping machinery by the addition of successive units and the construction of canal extensions and additional canals as conditions permit and the land owners get their land cleared up and graded and otherwise prepare it for irrigation.

### RECOMMENDATIONS

Buford-Trenton. We understand that \$300,000 has been tentatively set aside for the Buford-Trenton Project. We recommend the setting aside of an additional \$325,000, making a total of \$625,000. This project is now estimated to have a total area of 25,000 acres.

Williston. We recommend the setting aside of \$1,000,000 for the construction of this project, which has an area of approximately 40,000 acres.

Nesson. We recommend the setting aside of \$625,000 for the construction of this project, which has an area of approximately 25,000 acres.

We recommend that the land owners under these projects be advised to form Water Users' Associations to secure the signatures of the land owners in the usual way to pledge the return of the cost to the Reclamation fund.

Excess Holdings. We recommend that the holders of excess lands be required to give trust deeds for the excess lands, to the Water Users' Associations in the usual manner, to insure their sale to persons eligible to perfect water rights under the Reclamation Law.

Farm Unit. We recommend that homestead unit on public land contain not to exceed 80 acres of irrigable land. The security of the fund would be increased and the prosperity of the community enhanced if all farms were reduced to the above figure.

We recommend that the land owners in each of the above projects be notified that when they have complied with the above requirements and conditions, construction will be undertaken.

Water Users' Associations. We recommend that authority be secured to negotiate for rights of way for the canal lines and structures.

Very respectfully,

(Signed)

A. P. DAVIS.

H. N. SAVAGE.

O. H. ENSIGN.

H. A. STORRS.

PERCIVAL M. CHURCHILL.

UNITED STATES GEOLOGICAL SURVEY,  
*Washington, September 28, 1905.*

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: I have the honor to transmit herewith copy of a report, dated September 22, of a board of engineers with reference to the pumping projects in the vicinity of Buford, Williston, and Nesson, North Dakota.

It is respectfully recommended that the report of the board of engineers be approved, and that further investigations be authorized along the lines indicated in the report.

Very respectfully,

(Signed) H. C. RIZER,  
*Acting Director.*

OFFICE OF THE SECRETARY,  
*Washington, January 4, 1906.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of September 28, 1905, to the Department you transmitted copy of a report dated September 22, of a board of engineers with reference to the pumping projects in the vicinity of Buford, Williston and Nesson, North Dakota, and recommended that the report of the board of engineers be approved and that further investigations be authorized along the lines indicated in the report.

Action was not taken on that report for the reason that its unqualified approval would have carried with it an appropriation of \$2,250,000.00 for the construction of said projects, action which I did not feel I would be justified in taking at that time until I was sufficiently advised as to the condition of the Reclamation Fund, correspondence in regard to which was then going on between this Department and your office.

On October 14, 1905, you submitted a statement of the condition of the Reclamation Fund to the Department in which it was estimated that there would be on hand June 30, 1908, in said fund an available balance of \$9,098,571.50, and you stated "It is proposed to recommend the allotment of this balance approximately as follows." Then followed a number of projects including the North Dakota pumping projects, \$1,000,000. As that statement

indicated a modification of your views since the date of your letter of September 28 recommending the approval of the report of the engineers which would have carried an appropriation of \$2,250,000, I have further suspended action on your letter of September 28 awaiting the proposed recommendation referred to in your letter of October 14.

In this connection reference is had to your letter of the 28th ultimo reporting on a communication from the Secretary to the President, dated the 22nd ultimo, in reference to the North Dakota projects in which you say "In the later estimates sent to you I have assumed that a million dollars would be allotted for one or another of these pumping plants."

The Department would hardly have been justified in allotting a million dollars to any of these plants in the face of the statement in your letter of October 14 that "It is proposed to recommend the allotment of this balance approximately as follows:

\* \* \* North Dakota Pumping Projects \$1,000,000." That proposed recommendation has not as yet been received, and the Department does not feel that your letter of the 28th ultimo can be properly regarded as such a recommendation.

Referring further to your letter of the 28th ultimo and the reference therein to the report of the engineers of September 22, 1905, this statement is noted: "This report contains several general recommendations, particularly of policy to be pursued. It is important that the recommendations be acted upon as an essential preliminary to further progress." Also the statement "There are a number of details to be adjusted on the basis of your action upon my letter of September 28. Assuming that this action will be favorable, it is believed that advertisements can be issued for bids for construction during the early spring."

In this connection you are advised that your recommendation of September 28 was general in character, namely: "that the report of the engineers be approved and further investigations be authorized along the lines indicated therein." The unqualified approval of that report would have carried with it the approval of the recommendations as to appropriations from the Reclamation Fund, which I did not feel at that time I would be justified in making for reasons herein above stated.

The tone of your letter seems to imply that the failure of the Department to act upon your letter of September 28 has caused a delay in this matter, and that the responsibility for this delay is upon the Department. I disavow that responsibility utterly. Whenever a definite and specific recommendation on the report of the engineers of September 22, aside from the appropriations recommended by them, is submitted to the Department prompt consideration will be given thereto.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

UNITED STATES GEOLOGICAL SURVEY,  
Washington, January 16, 1906.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: I have the honor to acknowledge the receipt of departmental letter of January 4, 1906, in regard to the pumping projects in the vicinity of Buford, Williston, and Nesson, North Dakota.

The report of the Board of Engineers dated September 22, 1905, submits estimates for these projects as follows:

		<i>Acres</i>
Buford-Trenton .....	\$625,000	25,000
Williston .....	1,000,000	40,000
Nesson .....	625,000	25,000
Total .....	<u>2,250,000</u>	

These sums are the estimated cost for the completion of the projects in question for the irrigation of approximately 90,000 acres.

As stated in my letter of December 28, 1905, there has been no delay in the field work pending action upon the papers submitted to the Department, and estimates have been prepared concerning the cost of the construction necessary to begin the work and place under irrigation a certain proportion of the lands.

The projects in question are dependent upon pumping water from the Missouri River, and it is deemed best to develop them gradually, in order to study the conditions of handling pumping projects of lower lifts before engaging extensively on pumping work requiring higher lifts.

The three projects are located close together, and it is proposed to develop them at the same time.

The initial installation which appears to be most feasible involves the irrigation of about 12,000 acres under the Nesson Project, 7,000 acres under the Williston Project, and about 11,000 acres under the Buford-Trenton Project. The preliminary estimate for this initial installation and operating expenses is about \$1,000,000.

Under date of November 18, 1904, the Department tentatively set aside the amount of \$550,000 for pumping projects in North Dakota, of which \$250,000 was for what is known as the Bismarck Project, and \$300,000 for the Buford-Trenton Project.

It has been found that the landowners under the Bismarck Project are unwilling to comply with the requirements of the reclamation act and with the policy adopted by the Department in dealing with private landowners, and there seems to be no probability that the Bismarck Project would be ready for construction for a considerable time.



The Board of Engineers in its report of September 22 stated that the security of the government would be increased and the prosperity of the community enhanced if all the farms were reduced to an area not to exceed 80 acres of irrigable land.

The annual maintenance charges under pumping projects are necessarily higher than under gravity systems, so that the charges for large farms would be quite heavy and there would be less danger of default or difficulty in meeting them if the farms were 80 acres instead of 160 acres.

It is believed that the landowners having lands in excess of 160 acres will not object to subdividing the excess if they are allowed to hold 160 acres of their present holdings, and as the holders of such tracts have improved a certain portion of them at the present time, it is believed that they could carry the burden in question; while if the parties purchasing the excess lands were to take them in 80-acre tracts, the difficulty of large charges upon raw land would be to a considerable extent avoided.

Section 5 of the reclamation act provides that "no right to the use of water for land in private ownership shall be sold for a tract exceeding 160 acres to any one landowner." This leaves within the discretion of the Secretary of the Interior the decision as to the limit to be placed upon lands held by private landowners to be furnished with water under the project. I agree with the Board in its view that it would be to the advantage of the project if a limitation such as I have indicated were placed upon the lands.

In view of the conditions stated on page 2 of this letter, I recommend that the Department set aside the sum of \$450,000 to be used in connection with the \$550,000 already allotted for pumping projects in North Dakota for initial installation on the Nesson, Williston, and Buford-Trenton projects, making an allotment of \$1,000,000 for these three projects, upon the following conditions:

(1) That the landowners pledge themselves in the usual way, through the water users association, to return the cost to the reclamation fund;

(2) That the holdings of private lands in excess of 160 acres for which water is to be furnished be disposed of in tracts not exceeding 80 acres of irrigable lands;

(3) That the owners of irrigable lands in excess of 160 acres be required to dispose of them in the manner provided by the general form of contract for this purpose, heretofore approved by the Department.

Very respectfully,

(Signed) CHARLES D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, January 23, 1906.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In accordance with the recommendation contained in your letter of the 16th instant, and in view of the conditions therein set forth, I hereby set aside from the reclamation fund the sum of \$450,000 to be used in connection with the \$550,000 already allotted for pumping projects in North Dakota, for initial installation on the Nesson, Williston and Buford-Trenton projects, making an allotment of \$1,000,000 for these three projects, upon the following conditions:

1. That the landowners pledge themselves in the usual way, through the water users association, to return the cost to the reclamation fund.

2. That the holdings of private lands in excess of 160 acres for which water is to be furnished be disposed of in tracts not exceeding 80 acres of irrigable lands.

3. That the owners of irrigable lands in excess of 160 acres be required to dispose of them in the manner provided by the general form of contract for this purpose, heretofore approved by the Department.

This leaves an estimated available balance on July 1, 1908, of \$1,423,571.50.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# NEWLANDS PROJECT

## (TRUCKEE-CARSON)

The *Newlands Project* was found feasible under the original Reclamation Act prior to its amendments. See the Director's finding of feasibility, March 7, 1903 (page 601) and the Secretary's authorization, March 14, 1903 (page 609).

# NEWTON PROJECT

THE SECRETARY OF THE INTERIOR,  
*Washington, October 12, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: In accordance with the requirements of the Act of August 11, 1939 (53 Stat. 1418), as amended, I submit this report on the Newton irrigation project in Cache County, Utah, and request your approval of the findings and certifications contained herein.

## PROJECT PLAN

The proposed work involves the construction of a reservoir of 5,200 acre-feet capacity on Clarkston Creek to supplement the water supply for 1,660 acres of irrigated land and to provide a full water supply for 565 acres of good, arable land near Newton, Utah. An area near the town of Clarkston, above the reservoir site, also will participate in the project to a minor extent. The lands are all under cultivation and for the most part under ditch, but because of lack of late season water cannot be intensively farmed. Construction of the project will assist greatly in stabilizing the agricultural and economic situation of the area. The principal engineering feature will be an earth-filled dam 109 feet high above the stream bed and 640 feet long on the crest. The water distribution system has already been constructed.

## PARTICIPATION OF FEDERAL AGENCIES

It is proposed that the Bureau of Reclamation will construct the dam, reservoir and appurtenant works. The present plan, subject to change, is that the Bureau of Reclamation also will operate the dam after it is built and negotiate contracts with the water users for the repayment of construction charges. The Department of Agriculture plans to make a detailed survey of the agricultural pattern of the project to determine the part it

can take in the rehabilitation of the area. This will include a study of the present water use and irrigation practices, farm ownership, operating units and tenure agreements, and cropping practices. The Work Projects Administration and the Civilian Conservation Corps are expected to provide most of the labor and a small amount of materials, supplies and equipment. A report to you from the Work Projects Administration on the extent of its proposed participation is enclosed. The Department of Agriculture has advised that its proposed participation is discussed in a letter to me dated September 19, 1940, and that this letter, a copy of which is enclosed, may be used as its report to you. Until appropriations are made to the Department of Agriculture for its participation, it is planned that allocations from appropriations made under the authority of the Act of August 11, 1939 (53 Stat. 1418), will be made to the Bureau of Reclamation and that the Department of Agriculture will be reimbursed for services by the Bureau of Reclamation through transfers or advancement of funds from the allocations.

### ESTIMATED COST

The total estimated cost of the project is \$618,000, of which \$223,000 is expected to be obtained from appropriations made and to be made under the authority of the Act of August 11, 1939, and the amendments thereto, and \$395,000 through work accomplished by the Work Projects Administration or the Civilian Conservation Corps or both. The construction of works by the Bureau of Reclamation will require \$595,000, and the survey by the Department of Agriculture, \$23,000. Included in this latter sum are funds for the field investigations and surveys as well as any development planning and guidance work which may be found necessary when the project is completed. A tabulation, giving the estimated breakdown of expenditures, is attached. If forces from the Civilian Conservation Corps are used, the amount to be expended by the Work Projects Administration and the Civilian Conservation Corps is estimated to equal that shown for expenditure by the Work Projects Administration. However, the breakdown under the various features would probably not be the same, due to the differences in administrative procedures of the two agencies and the legislation which applies to them. Out of the \$3,500,000 made available by the Interior Department Appropriation Act of 1941, it is estimated that \$150,000 will be needed for work to be accomplished in the fiscal year 1941.

### ALLOCATION OF COSTS

The total estimated cost of the proposed construction can be properly allocated to irrigation. The reservoir will have no material influence on the floods and no flood control allocation is justified. There are no opportunities for profitable power development and no part of the cost should be allocated to power or

to municipal or miscellaneous water supplies. Indian lands are not involved. It is believed that the water users can repay in 40 annual installments, following a short development period, the entire allotment from funds made available under the Act of August 11, 1939, and the amendments thereto, now estimated at \$215,000, and in addition not to exceed \$135,000 of the funds expended for construction by the Work Projects Administration and the Civilian Conservation Corps. The expenditures by the Department of Agriculture estimated at \$8,000 from the general fund appropriation would be repaid in accordance with section 5 of the Act as amended.

### FINDINGS, CERTIFICATIONS AND RECOMMENDATIONS

Based on the foregoing report and other data available to me concerning the proposed project, I make the following findings and certifications:

1. I find and certify that the proposed project has engineering feasibility.
2. I find that the estimated cost of the proposed construction is \$595,000, exclusive of the cost of participation by the Department of Agriculture, which is estimated at \$23,000.
3. I find that the entire estimated cost of the project is properly allocated to irrigation; and that no part of the costs can properly be allocated to municipal or miscellaneous water supplies, power, irrigation of Indian trust and tribal lands, or to flood control.
4. I find and certify that the water users probably can repay in 40 annual installments, following a short development period, the entire amount to be expended from moneys appropriated as authorized by the Act of August 11, 1939, as amended, estimated at \$215,000, and in addition not to exceed \$135,000 of the funds expended by the Work Projects Administration and the Civilian Conservation Corps.

I recommend that you approve the foregoing report and findings; and I recommend that you find, by your approval of this report that services, labor, materials, easements and other property, including moneys for the construction of the project should be made available to the Department of the Interior by the Work Projects Administration, the Civilian Conservation Corps, or other Federal agencies in the amount found necessary by me to make up the difference between the estimated cost of the project construction and the amount which will be allocated from appropriations made under the provisions of the Act of August 11, 1939, and the amendments thereto.

Sincerely yours,

(Signed) A. J. WIRTZ,  
*Acting Secretary of the Interior.*

Approved October 17, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

THE SECRETARY OF THE INTERIOR,  
*Washington, August 9, 1943.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: There is presented herein, for your approval, a proposal to complete and to bring into operation, the Newton irrigation project in Cache County, Utah, under the provisions of the act of October 14, 1940 (54 Stat. 1119), as amended by Public 152, approved July 16, 1943. The construction of this project, which you approved on October 17, 1940, would involve the development of a supplemental water supply for 1660 acres of irrigated land and a full water supply for 565 acres of new land. A copy of the report and findings which you approved is enclosed.

#### STATUS OF CONSTRUCTION

The major construction feature of the project is an earth and rock fill dam. Practically all of the concrete had been placed in the outlet works structure, stripping of the dam foundation had been finished, the cutoff trenches along the foundation of the dam had been excavated and refilled with compacted embankment, and the embankment of the main dam section had been started when the War Production Board ordered the work halted in December 1942. Practically all of the construction equipment was left at the site and is available to complete the work. Most of the critical materials are on hand, future construction requiring only 32 tons of steel, some wire rope, nails, and repair parts for construction equipment, and similar items estimated to cost \$22,000. On February 26 the Bureau of Reclamation requested the War Production Board to reconsider the stop order so that construction might be resumed on the new dam, which is approximately one mile downstream from the old dam which had deteriorated to such an extent that the State Engineer had prohibited further storage behind it.

#### CONDITION OF EXISTING DAM

Construction of a dam at the site of the existing dam was started in 1871, but because of improper construction it failed three times. The existing dam was completed in 1886, but has progressively deteriorated. Sloughing has occurred on both the upstream and downstream faces of the embankment to such an extent that in places the crest has less than half of its original width and the downstream slope is unstable. Heavy rainfall dur-

ing the past winter caused the collapse and destruction of the wooden spillway structure, and serious settlement cracks developed in the dam abutments. A considerable length of outlet conduit has failed sufficiently to allow water to escape along the outside of the barrel. The consequent slow removal of adjacent embankment materials constitutes a further serious hazard to the dam structure.

Failure of the existing dam prior to completion of the new dam would remove some 1600 acres of good agricultural land from production, and cause a partial loss of water supply to other productive lands. A part of the work already completed on the new dam would be lost; a high fill and bridge over Newton Creek, near the town of Newton, would be destroyed, and considerable damage would result to buildings and property in the town of Newton. The main line of the Union Pacific Railroad between Salt Lake Valley and Idaho would be washed away at several points. Repair of the existing dam is considered to be an undesirable alternative to completing the new dam because the required expenditures in critical materials and money would approximate the requirements for completion of the new dam, and the repair work would be only of a temporary nature.

#### ESTIMATED COST AND FINANCING PROCEDURE

When you approved this project for construction on October 17, 1940, it was estimated that the total cost of construction would be \$595,000, of which the Work Projects Administration would furnish \$380,000 in the form of labor and some materials. Local interests agreed to pay \$350,000 of the construction cost. Advancing costs during the period immediately following your approval, delays in shipping and transportation which retarded delivery and added to the overhead costs, and the loss of trained personnel made it apparent that an additional allotment would be required to complete the project, of which it was estimated \$50,000 would be returned to the project upon completion through the transfer of equipment to other projects. Consequently, on October 10, 1941, the Acting Secretary of the Interior approved an additional allotment of \$100,000 from the appropriation for Water Conservation and Utility Projects, making a total allotment of \$315,000 instead of \$215,000 as originally contemplated. This amount would be repaid by the interests who are to be benefited under the terms of the repayment contract dated August 29, 1941, which fixes their obligation at \$350,000.

Of the total cost, \$315,000 has been allotted from the appropriation for Water Conservation and Utility Projects. Since the Non-Industrial Facility Committee of the War Production Board on July 24 approved the resumption of work on the project, I propose to allot an additional \$35,000 from the above appropriation so that construction can proceed immediately. The Work Projects Administration furnished labor and materials to the value of \$85,000 out of its originally estimated contribution of \$380,000. Instead of \$295,000 (\$380,000-\$85,000) it is now believed that an



additional \$275,000 will be sufficient to complete the project. If you approve continuation of construction, it is proposed to allot this sum (\$275,000) from the appropriation for Water Conservation and Utility Projects, in lieu of the Work Projects Administration contribution, and to continue construction in accordance with Section 5 of the act of July 16, 1943, Public 152. Sufficient funds for this purpose have been appropriated and are now available for allotment.

#### CONSULTATION WITH THE WAR FOOD ADMINISTRATOR

On March 2, 1943, I transmitted to the Secretary of Agriculture, for his consideration, an optimum five-year program covering the production of certain critical war foods in which the bureaus of the Department of the Interior have special administrative responsibilities. The Newton project was among the irrigation projects recommended for consideration, and on April 16, detailed information was submitted to the War Food Administrator. On May 5, 1943, the War Food Administrator transmitted a list of ten projects, including Newton, to the Chairman of the War Production Board and on May 10 he recommended an immediate rescinding of the stop construction orders and that adequate priorities for rating materials be granted to permit early resumption of work on the Newton and three other projects. A copy of the letter of May 10, is enclosed.

#### FINDINGS AND RECOMMENDATIONS

Reimbursable costs were heretofore fixed at \$350,000 in the finding made pursuant to subsection 3 (a) (IV) of the act of October 14, 1940. Within the limits of the authority of the act of July 16, 1943, I shall make adjustments in the project construction costs to the extent necessary to keep the reimbursable costs in conformity with that finding.

I have consulted with the War Food Administrator, acting in the stead of the Secretary of Agriculture, concerning the justification of this project. Based on these consultations and on the information available to me concerning the project, I find that the proposed construction is justifiable as an aid in the production of needed agricultural products.

I recommend that you approve this report and finding.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved August 31, 1943.

(Signed) FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,  
*Washington, August 31, 1943.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge the receipt of your letter of August 9, 1943, together with supporting data, addressed to me through the Bureau of the Budget, requesting authorization for continuing the construction of the Newton irrigation project in Cache, County, Utah, to completion, under the provisions of the Water Conservation and Utilization Act, as amended on October 14, 1940 and July 16, 1943, at an estimated total net cost of \$660,000.

Due to the apparent urgent necessity for this facility, as stated by you and the War Food Administrator, I hereby approve the continuation of construction of this project under the terms and conditions recommended.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

# NORTH PLATTE PROJECT

BUREAU OF RECLAMATION,  
*Washington, April 29, 1925.*

The SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: The act of December 5, 1924 (Public No. 292, 68th Congress) contains the following appropriation:

North Platte Irrigation Project, Nebraska and Wyoming: For continued investigations, commencement of construction of the Guernsey Reservoir and incidental operations, \$800,000.

The Act contains the following proviso:

*Provided*, That no part of the sums herein appropriated shall be used for the commencement of construction work on any reclamation project which has not been recommended by the Commissioner of Reclamation and the Secretary of the Interior and approved by the President as to its agricultural and engineering feasibility and the reasonableness of its estimated construction cost.

The estimated cost of the dam in round numbers is \$1,780,000. The estimated cost of a 2,500 kilowatt power development at the dam is \$325,000. To the foregoing must be added (a) \$121,000, most of which has been already expended in connection with surveys and investigations, the purchase of flooded lands and road construction, and (b) \$290,000 needed in connection with a subsidiary power plant at Lingle, Nebraska, and transmission lines connected therewith. The total estimated cost of the dam and power development therefore aggregates \$2,516,000.

To recoup this expenditure the Government may look to the following sources: (a) the Interstate Division of the North Platte project. The landowners on this division have agreed in the manner provided by the Act of Congress of August 13, 1914 (38 Stat., 686) to an increase of the construction charge against their land of \$16 an acre, a part of which it is provided may be utilized for the building of the Guernsey Reservoir, including a 2,500 kilowatt power development. From this source it is estimated that a return of \$966,000 will be available for the Guernsey Reservoir and

power development; (b) the Northport Division of the North Platte project, from which, under contract with the United States, a total of \$134,000 is to be paid for the Guernsey Reservoir and power development; and (c) the Fort Laramie Division of the North Platte project, on which construction charges have not yet been announced, but these charges when announced will include a rate per acre which in addition to other amounts will produce a return of \$885,000 applicable to the cost of the Guernsey Reservoir and power development. These figures aggregate \$1,985,000.

The above amounts are to be returned from the North Platte project which has been under development for a number of years. From existing knowledge of the agricultural conditions on the project, I believe the water users on the Interstate, Northport, and Fort Laramie divisions will be able to pay within the period allowed by the Reclamation law, their construction charges, including items in the amounts stated above, for the Guernsey Dam and power development.

It will be noted that the anticipated returns from the Interstate, Northport, and Fort Laramie divisions of the North Platte project fall short by approximately half a million dollars of producing sufficient returns to repay the entire estimated cost of the development. The remainder, however, will be obtained from the net revenue which will be derived from the sale of power which has been and will be developed at the Guernsey Reservoir. The act of March 3, 1925 (Public No. 580, 68th Congress) provides, "That all net revenues from any power plant connected with the Guernsey Dam shall be applied to the repayment of the construction costs incurred by the Government on the project, until the obligations are fully paid." The contracts already made and pending insure a net return of about \$40,000 per annum, which will pay off the remainder of the construction cost of approximately \$500,000, in less than fifteen years. There is also a possible increase in revenue from the sale of additional water for irrigation, as the reservoir will have a capacity considerably in excess of the requirements of the areas hitherto named, which will contribute to the repayment of these costs, and the sale of this surplus water to other lands would expedite the payment of construction costs.

The Bureau has investigated, in a preliminary way, several prospective projects in Wyoming and Nebraska to which the surplus water in the reservoir could be sold, but the investigations have not been carried to a point where positive forecasts can be made regarding such sales. This, however, is not necessary.

I therefore recommend that the construction of the Guernsey Reservoir and power plant be authorized.

Respectfully,

(Signed) ELWOOD MEAD,  
*Commissioner.*

APRIL 29, 1925.

Finding and recommendation concurred in and matter referred to the President with recommendation that he approve the Guern-

sey Reservoir and power plant as to their agricultural and engineering feasibility, and as to the reasonableness of their estimated construction cost.

(Signed) HUBERT WORK,  
*Secretary of the Interior.*

Recommendation approved April 30, 1925.

(Signed) CALVIN COOLIDGE,  
*President.*

# OGDEN RIVER PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, November 13, 1935.*

THE PRESIDENT,  
THE WHITE HOUSE.

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*), 295 U. S. 174, indicated that Section 4 of the Act of June 25, 1910 (36 Stat. 835) is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Ogden River Project, Utah, is made to you under said statute of 1910 and under sub-section B of Section 4 of the Act of December 5, 1924 (43 Stat. 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Sub-section B, Section 4, Act of December 5, 1924 (43 Stat. 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 24, 1933, I approved an allotment of \$3,000,000 from the appropriation made available pursuant to Title II of the National Industrial Recovery Act of June 16, 1933 (48 Stat. 195) and under date of August 3, 1935, you approved an allocation of \$500,000 from the Emergency Relief Appropriation Act of 1935 for the construction of the Ogden River Proj-

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<sup>1</sup> The *Ogden River Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

ect, all of which is still available or has been expended toward the construction of the project.

The water to be developed by the project will be used for the purpose of furnishing a supplemental supply of water for approximately 16,000 acres of irrigated land and furnishing a full irrigation supply for about 4,500 acres of new lands situated in the vicinity of Ogden, North Ogden, Willard, Perry and Brigham City, Utah, and in addition furnish about 10,000 acre feet of storage water annually to Ogden City for municipal purposes. About 14,900 acres of the land to be supplied with water are situated under old existing irrigation and canal companies and about 3,550 acres are included in the Weber-Box Elder Conservation District and about 2,050 acres in the South Ogden Conservation District, both of which districts were formed for the purpose of participating in the project, and which two districts together with the old canal companies formed the Ogden River Water Users' Association which has entered into a contract with the United States dated May 31, 1934, to repay the cost of the project.

The furnishing of water for the project lands will be accomplished by the construction of the Pine View Reservoir on the Ogden River with a storage capacity of 41,000 acre feet of water, the construction of the Ogden-Brigham Canal which diverts water from the reservoir through and by means of the reconstruction and enlargement of the Utah Power & Light Company's pipe line to serve the needs of both the project and the power company and which canal from the end of the pipe line is approximately 23 miles in length, and the construction of the South Ogden Highline Canal which diverts at the end of the reconstructed and enlarged pipe line and extends for a distance of approximately 8 miles. Said Ogden-Brigham Canal has a capacity of 120 second feet and the South Ogden Highline Canal a capacity of 35 second feet. In addition to the reservoir, pipe line and two canals above mentioned it is necessary to reconstruct highways, and to reconstruct that portion of Ogden City's pipe line system which lies within the reservoir site and to do other incidental work.

Studies and investigations made by the Bureau of Reclamation indicate that the water supply is adequate for the purpose intended, that the construction of the reservoir, canals and other works is feasible from an engineering standpoint, and that the project can be completed at a cost of \$3,500,000, which is \$600,000 in excess of the \$2,900,000 which the Association has agreed to pay. A supplemental contract to cover the repayment of the additional amount of \$600,000 will be required if the project is to be completed by the United States.

I find that the project is feasible, that the lands watered thereby are adaptable for actual settlement and farm homes, that the lands are in need of a water supply, and that the project will probably return the cost thereof to the United States. In this connection it is desired to mention that the lands which will be supplied with water are highly developed, well colonized, and in relatively small ownerships. There is little danger under the circumstances of an inflationary upward movement in land values

bringing in new settlers buying on time at high prices to the ultimate detriment of the project.

I recommend that the project, now in process of construction, consisting of the Pine View Dam, pipe line, two canals, highways, and other works, be approved, that any steps or action heretofore taken toward the construction of the same be ratified, and that authority be given to this Department to proceed with the work and to make contracts and take any necessary action to construct and complete the project.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 16, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*



# OKANOGAN PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Wenatchee, Washington, April 27, 1905.*

F. H. NEWELL, Esq.,  
*Chief Engineer, Reclamation Service, Washington, D. C.*

DEAR SIR: The undersigned board of engineers have examined the Okanogan Project on the ground and the plans and estimates submitted thereon by Mr. T. A. Noble, and have to report as follows:

Water Supply. Observations of stream flow of Salmon Creek have covered a period of only two years, which indicate a discharge of 51,000 and 31,000 acre feet respectively. As neither of these years is likely to be an absolute minimum we are of the opinion that the utmost limit of irrigable area from this water supply when fully conserved is 10,000 acres. For this purpose a storage capacity of 10,000 acre feet is necessary. The area already irrigated is estimated at 1,500 acres and has at present an adequate water supply and therefore would not be likely to contribute to any new development. The cost of the project must therefore be born by 8,500 acres.

## Estimated Cost:

Salmon Lake Reservoir, capacity 4,300 acre-feet.....	\$12,000
Conconully Reservoir, capacity 7,900 acre-feet.....	91,200
Tunnel and Canal to Brown Lake (Pogue Route) capacity 80 second-feet.....	81,700
Brown Lake Reservoir, capacity 7,000 acre-feet.....	46,250
Distribution System, 8,500 acres at \$8.00.....	68,000
Total .....	299,150
Engineering and Contingencies, 20%.....	59,850
Total .....	359,000
Maintenance 10 years, 8,500 acres at \$10.00.....	85,000
Total .....	444,000
Cost per acre \$52.25.	

Value of Land. In view of the high cost we have made careful inquiry into the probable value of these lands under irrigation.

The limited area of the tract and its location in the heart of an extensive range country, which would be dependent upon it for winter feed insure a profitable and permanent market for forage which we believe would return a profit upon a valuation of \$100 per acre. In addition to the above the lands appear to be well adapted to the production of deciduous fruits and nuts and for this purpose the land would yield much larger returns. Lands near Wenatchee of similar character with adequate water supply are worth from \$150. to \$200. per acre, and water rights are being sold at from \$50. to \$80. per acre with an additional charge for maintenance of from \$1.25 to \$1.50 per acre per year.

In view of the above facts we are of the opinion that the lands would be ample security for \$60. per acre. This opinion seems to be concurred in unanimously by the present holders of land under the project, who are very anxious to guarantee the return of the cost on the above basis.

Recommendations. First. We recommend that the observations of water supply be continued and the district engineer be instructed to push investigations to the point where a closer estimate of cost can be made and if this should not materially exceed the present estimate, and provided that suitable arrangements for water rights and rights of way can be concluded, and that the owners of irrigable lands comply with the required terms, that the project be constructed.

Second. That upon construction being authorized the farm units on public land be fixed so as to provide not less than 40 nor more than 80 acres of irrigable land for each; and that private owners be limited to the purchase of water for 80 acres of land.

Respectfully submitted,

(Signed) A. P. DAVIS,  
*Assistant Chief Engineer.*  
A. J. WILEY,  
*Consulting Engineer.*  
D. C. HENNY,  
*Consulting Engineer.*  
T. A. NOBLE,  
*District Engineer.*

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Brewster, Washington, October 9, 1905.*

CHIEF ENGINEER,

*United States Reclamation Service, Washington, D. C.*

SIR: The undersigned Board of Engineers, designated to report on the Okanogan Project has examined the principal features involved, has studied plans and estimates prepared by Mr. C. Andersen and has conferred with the people interested in the project.

We find that the total area irrigable from Salmon River is 10,000 acres, of which there are now being irrigated 1,350 acres, the vested water rights whereof have been defined by preliminary mutual agreement.

We estimate that the cost of irrigating the remaining 8,650 acres will not exceed 50 dollars per acre, including ten years maintenance.

We find that the people are willing and anxious to accept the project on the basis of the cost estimated and to comply with all the usual requirements preliminary to construction and we believe that the land is ample security for the estimated cost of construction as stated above.

We therefore recommend:

First. That the sum of \$432,500. be set aside for the construction of this project.

Second. That the construction be commenced as soon as the following conditions have been complied with:

a. That formal agreements defining the water rights for at least 90 % of the 1,350 acres now irrigated be duly executed and that in connection therewith the perpetual use of Salmon Lake reservoir be granted to the United States by its present owners.

b. That a Water Users Association be organized and that at least 90 % of the 8,650 acres of the irrigable land be subscribed.

c. That contracts for the disposal of excess land be executed for at least 90 % of the excess area.

Third. That the farm unit for the project be fixed at 40 acres of irrigable land.

Fourth. That in order that the work may be completed in time for the irrigation season of 1907 prompt action be taken for the authorization of this project.

(Signed) BOARD OF ENGINEERS,  
A. J. WILEY,  
*Consulting Engineer.*  
MORRIS BIEN,  
*Supervising Engineer.*  
D. C. HENNY,  
*Supervising Engineer.*  
PROJECT ENGINEER,  
(Signed) CHRISTIAN ANDERSEN,  
*Engineer.*

OCTOBER 18, 1905.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: I have the honor to transmit herewith copy of report of a board of engineers, dated October 9, on the Okanogan project in the State of Washington.

This project is designed to reclaim 8,650 acres, at an estimated cost of not to exceed \$50 per acre. The board has recommended that the sum of \$432,300 be set aside for the construction of this project. In order that the amount may be stated in round numbers, I suggest that the tentative allotment be put at \$500,000, or as much thereof as may be needed.

In my letter of October 14, on page 4, it is stated that it is proposed to recommend the allotment of the estimated balance of over \$9,000,000. Of this amount, \$2,500,000 has been considered for the State of Washington, the principal part of which may be needed for the Yakima Valley project. This latter project is not yet in a position where definite recommendations can be made. I therefore suggest that \$500,000 be set aside, as above stated, for the Okanogan project and the remainder be considered in the future for the Yakima Valley project, should this be brought to a definite conclusion.

I also respectfully request that the recommendations of the board of engineers be approved, and that suitable authority be given to push the work to the point of letting contracts at the earliest practicable date.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, December 2, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: On October 18, 1905, you submitted for my consideration the report of the Board of Engineers dated October 9 on the Okanogan Reclamation Project in Washington. The Board of Engineers made the following recommendations:

First, that the sum of \$432,300 be set aside for the construction of this project.

Second, That the construction be commenced as soon as the following conditions have been complied with:

a. That formal agreements defining the water rights for at least 90 % of the 1,350 acres now irrigated be duly executed and that in connection therewith the perpetual use of Salmon Lake reservoir be granted to the United States by its present owners.

b. That a Water Users' Association be organized and that at least 90 % of the 8,650 acres of the irrigable land be subscribed.

c. That contracts for the disposal of excess land be executed for at least 90 % of the excess area.

Third, That the farm unit for the project be fixed at 40 acres of irrigable land.

Fourth, That in order that the work may be completed in time for the irrigation season of 1907 prompt action be taken for the authorization of this project.

You recommended that these recommendations of the Board of Engineers be approved; that \$500,000 be set aside for the construction of said project, and that suitable authority be given to push the work to the point of letting contracts at the earliest practicable date.

On November 8, 1905, you were advised that your recommendations were not approved, and on November 15th you were further advised that the purpose of the Department in taking the action of November 8 was "simply to suspend action on your recommendation pending further investigation and consideration of said project."

The further investigation and consideration mentioned have now been had and in view thereof, and as the result of a conference this morning with the entire Congressional delegation from the State of Washington at which information was submitted to the Department in relation to this project of which it has never heretofore been apprised, the report and recommendations of the Board of Engineers in reference to said project dated October 9, 1905, are hereby approved. \$500,000 or so much thereof as may be necessary, is hereby set aside from the reclamation fund for the construction of said project and authority is hereby given to push the work to the point of letting contracts at the earliest practicable date.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# ORLAND PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Portland, Oregon, November 12, 1906.*

CHIEF ENGINEER,  
*Washington, D. C.*

DEAR SIR: In accordance with your instructions the preliminary investigations instituted in connection with the Orland Unit of the Sacramento Project have been reviewed by a board of engineers consisting of D. C. Henny, E. G. Hopson and S. G. Bennett. This board held its sessions in Portland, Oregon, November 11 and 12, 1906, and has the honor to report as follows:

There are about 2 million acres of land in the Valley that is likely to be suitable for irrigation. The run-off of the Sacramento River is sufficient to supply three times the amount of water that might be required for the irrigation of the entire Valley.

The natural unregulated flow of the Sacramento River system is such that three-fourths of the entire run-off is discharged during the winter and early spring months. The remaining one-fourth, which flows down during the irrigation season, reaches a minimum during the midsummer months when irrigation demands a maximum supply.

While the natural flow, therefore, would permit of the full irrigation of but a relatively small portion of the Sacramento Valley, it is nevertheless very important, as may be noted from the following schedule:

## MINIMUM DISCHARGES OF THE SACRAMENTO, FEATHER AND YUBA RIVERS

	<i>Second-feet</i>
Sacramento River at Red Bluff.....	3,600
Feather River above mouth of Yuba.....	1,100
Yuba River at its mouth.....	400

Disregarding streams farther to the South, the above minimum flow would be sufficient to irrigate five hundred thousand acres of land in the Valley.

The lower reaches of the stream, however, remain navigable even during low water flow, and the diversion of large quantities of water at such times would cause interference with navigation. Large irrigation development must therefore depend upon storing of flood waters, and a study was commenced by the Reclamation Service of available storage reservoirs supplementary to previous investigations by the Hydrographic Branch of the Geological Survey.

Numerous possibilities exist as indicated in the report of Mr. S. G. Bennett dated June 30, 1906, and it was found that a commencement with irrigation might be made at almost any desired point in the Valley so far as water supply is concerned.

The selection of a first unit was largely influenced by two important facts:

First, that in accordance with your instructions a first unit should be self-contained and its estimated cost should be well below one million dollars.

Second, that the land in the Valley has been devoted to wheat raising; that it is held in large areas by single owners; that the gradual exhaustion of the soil for wheat raising purposes has tended to enlarge the average holding and cause absent landlordism, and that the land owners not only do not appreciate irrigation possibilities but generally oppose a forced subdivision such as must be an essential condition attached to any reclamation project.

The latter consideration led to investigating the feasibility of a project for the irrigation of lands in the vicinity of Orland in Glenn County, where landowners had voluntarily formed a water users' association, where large bodies of land had been subscribed and where consequently the best prospect existed of successfully solving this phase of the situation.

The land in the vicinity of Orland can be watered from Stony Creek, one of the tributaries of the Sacramento River entering from the west. The small low water flow of this stream had been appropriated, and irrigation must therefore be dependent upon storage.

There are four feasible storage reservoir sites on this creek, as follows:

	<i>Acres-feet</i>
1. East Park .....	35,000
2. Briscoe .....	15,000
3. Mill Site .....	44,000
4. Stony Ford .....	45,000

The first three were reported and estimated on by Mr. Burt Cole in 1903. The East Park reservoir was found by him to be relatively the cheapest, and recent investigations therefore were started at this point, and bed rock was located at reasonable depth. The fourth site was located during recent investigations and is second in order of probable cost per acre foot stored.

A study of available hydrographic data shows that each of the above reservoirs would be filled each year with the exception of

those of extreme low rainfall, of which there has been only one during the last twenty years that records are available. During such low year the two most economical reservoirs considered, namely, the East Park and the Stony Ford reservoirs, would probably fill to the extent of 75% or more.

The land that can be most economically irrigated from the water stored in these reservoirs lies on both sides of Stony Creek below the point where it emerges upon the valley proper, about five miles above Orland. This land was investigated by Mr. W. H. Heileman, Soil Expert of the Reclamation Service, who reports that it is uniformly capable of producing all varieties of crops, including citrus fruits as grown in the San Joaquin and Sacramento Valleys and in Southern California.

A very small amount of this land is now under irrigation and is supplied by means of two canal systems, one owned by the Stony Creek Irrigation Company, whose canal lies to the south of Stony Creek, and by the Lemon Home Power and Light Company, irrigating lands to the north side. The latter company has been in operation about nine years and the former for double that time. The present irrigation is confined to about 400 acres on the south side and 40 acres on the north side. The small extent of irrigation after such a long time of operation may be explained by the extremely small summer flow of Stony Creek, thereby not permitting full irrigation except for a small area of land. Where full irrigation has been practiced the opinion expressed by Mr. Heileman is in every way confirmed.

The above two canal companies occupy with their canals strategic rights of way and have early water rights which will render it necessary to arrive at a distinct understanding with them either through agreement or more probably through purchase. In the estimates upon which the subsequent portion of this report is based certain valuations have been assumed contemplating the purchase of these canal properties.

There are small amounts of lands irrigated along Stony Creek in the narrow valley on the upper reaches of the stream. It is not expected that serious misunderstanding or litigation can result from conflict in regard to the use of water.

A flood irrigation appropriation has been made by the owners of the Central Irrigation Canal which crosses Stony Creek about nine miles below Orland. No serious complication is feared from this source, the total amount of acres irrigated with Stony Creek flood waters having been confined so far to about 400, and during the time that Stony Creek is in flood the Sacramento River, from which the Central Irrigation Company's canal is intended to derive its supply, is also in flood and would give ample water supply.

It has not been deemed advisable that investigation, the results of which must largely depend upon action of landowners, should be carried to a great degree of refinement until after a conditional allotment is available. This board is, however, of the opinion that the data at hand justify the following conclusions:

That the East Park reservoir in connection with the spring flow from Stony Creek will be sufficient for the irrigation of 11,000 acres.



That if instead of the East Park reservoir the Stony Ford reservoir be built there will be a sufficient supply for 14,000 acres.

That the most economical selection of lands upon which to use these waters would be in a solid body on the south side of Stony Creek.

That the general feeling among the people in the vicinity of Orland favors the irrigation of lands on both sides of Stony Creek.

That in view of private rights involved the canal properties may be purchased at a considerably reduced cost if some of the land on the north side of Stony Creek be included in the present unit.

That in any event from 1,000 to 3,000 acres may be added to the project by pumping from wells located at the lower edge of the lands to be irrigated, the supply for such wells to be obtained from underground water now existing in the gravel strata south of Stony Creek which will be added to through irrigation of the upper lands as herein proposed.

That the cost per acre, omitting lands to be irrigated by pumping, will lie between \$40.00 and \$50.00, with the probability that it will be close to \$42.00.

That such cost may be reduced by including as much land upon which to pump water from wells as subsequent experience may warrant.

That the climatic condition and the character of the soil indicate that the lands themselves will be abundant security for any possible cost of the project.

That it may be deemed advisable not to decide between the East Park and Stony Ford reservoirs until options on lands have been obtained in both.

That the maximum area of the project be considered as 14,000 acres covered by gravity and 3,000 acres covered by pumping, total 17,000 acres.

That this maximum would be reduced to 11,000 acres by gravity and 3,000 by pumping in case the East Park reservoir be selected, and

That the construction cost on the basis of maximum area may be estimated at \$650,000.

In view of the above we therefore recommend:

That the Orland Unit of the Sacramento Valley Project be approved and \$650,000 be now set aside for its construction, but that no money be made available for construction until after the following conditions shall have been complied with:

1. That a percentage of land, satisfactory to the Department, lying economically under the project shall have been pledged.

2. That satisfactory agreements for adjustment of water rights or for purchase shall have been concluded with the Stony Creek Irrigation Company and the Lemon Home Water and Light Company, and

3. That satisfactory options for the majority of lands shall

have been obtained either in the East Park or the Stony Ford reservoirs.

Yours very respectfully,

(Signed) D. C. HENNY,  
E. G. HOPSON,  
S. G. BENNETT,  
*Board of Engineers.*

UNITED STATES RECLAMATION SERVICE,  
*Klamath Falls, Oregon, August 5, 1907.*

The DIRECTOR,  
*U. S. Reclamation Service.*

DEAR SIR: A. P. Davis, M. Bien and D. C. Henny, appointed by you to report on the Orland Project, convened at Orland, California, on August 2nd and 3rd, and have the honor to report as follows:

On the 18th of December, 1906, the Secretary of the Interior allotted the sum of \$650,000 for the construction of the Orland Project, subject to four conditions.

We confined our work to an investigation of the extent to which these conditions have been complied with.

Condition No. 1: That 12,000 acres of land be pledged by the owners in a form to be approved by the Department such that the lands will be held bound to repay the cost of construction under the terms of the Reclamation Act.

We find that land subscriptions aggregate in excess of the limit placed by the Secretary and that the subscribed lands lie in bodies north and south of Stony Creek, which, while not absolutely solid, are in the main continuous and permit of such selection as will render an economical distribution system practicable. We find it feasible to select from the lands now subscribed, bodies of 7,000 acres north of Stony Creek and 5,600 acres south of Stony Creek, all to be supplied exclusively by gravity canals; also, an additional body of 1,400 acres which can be advantageously supplied partly by gravity canals and partly by pumping underground water.

We find that Condition No. 1 has been complied with.

Condition No. 2: That satisfactory arrangements be made and agreements completed for the adjustment of water rights or for options to purchase certain properties and rights, notably those of the Stony Creek Irrigation Company and the Lemon Home Water and Light Company.

Verbal agreements have been reached for the purchase of all properties and rights belonging to the Stony Creek Irrigation Company and the Lemon Home Water Power & Light Company at satisfactory prices, to wit: \$25,000 and \$15,000 respectively. We find that the rights of way and water rights of the Lemon Home Canal are at present owned by individual stockholders of said Company, who are prepared to make transfer of the same to the Company.

The purchase of above properties will settle all disputes with present claimants to water from Stony Creek and its tributaries, with the exception of several small irrigators of lands in the narrow foothill valleys and of a broad claim to Stony Creek waters of the Central Canal and Irrigation Company. As regards the above mentioned small irrigators, it is believed to be unnecessary to enter into written agreements with them because the areas which it will be possible for them to irrigate are small, and it is believed that the appropriation made by the United States of Stony Creek waters, if followed by construction and beneficial use will be a sufficient protection. As regards the Central Canal & Irrigation Company, we deem it necessary that a definite contract be entered into limiting the relative rights of the said Company. A tentative agreement to this effect has accordingly been drawn up by us, which is to be laid before the said Company by a committee of the Water Users' trustees, which agreement has the preliminary approval of the attorney of the Central Canal & Irrigation Company.

We have also prepared agreements with the Stony Creek Irrigation Company and the Lemon Home Water Power and Light Company for the purchase of their respective properties, the latter to be executed after all rights of way and water rights now held by individual stockholders shall have been transferred to the Company.

We find that Condition No. 2 will have been complied with after the Central Canal & Irrigation Company shall have executed a contract with the Government, such as has been submitted by us, and after the Stony Creek Irrigation Company and the Lemon Home Water Power & Light Company shall have signed agreements as drawn up by us, as above set forth.

Condition No. 3: That satisfactory arrangements be made for the purchase of lands needed for reservoir purposes.

We find that satisfactory options have been obtained for the purchase of lands for reservoir purposes.

Condition No. 4: That the owners of the lands agree to subdivide their holdings in excess of 160 acres into farm units of not to exceed 40 acres.

We find that the owners of the land to be irrigated have agreed to subdivide their lands in excess of 160 acres into farm units of forty acres and that the above condition has been complied with.

From the above it will be noted that Conditions 1, 3 and 4 have now been satisfied, and we recommend that, as soon as the various agreements above mentioned with the Central Canal & Irrigation Company, the Stony Creek Irrigation Company and the Lemon

Home Water Power & Light Company shall have been executed, all conditions imposed by the Secretary shall be deemed satisfied and that thereupon the Orland Project be definitely approved.

We deem it advisable that the land necessary for the diversion site at the head of the proposed Government canals be acquired prior to commencement of construction of the project and so recommend.

Respectfully submitted,

(Signed) A. P. DAVIS,  
MORRIS BIEN,  
D. C. HENNY,  
*Board of Engineers.*

UNITED STATES RECLAMATION SERVICE,  
*Washington, October 5, 1907.*

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: On December 18, 1906, the Department concurred in the recommendation of the Director of the Geological Survey that \$650,000 be conditionally allotted from the Reclamation fund for the construction of the Orland project, California, subject to the conditions specifically enumerated in the Director's letter of recommendation. These conditions are as follows:

1st. That 12,000 acres of land be pledged by the owners, in a form to be approved by the Department, such that the lands will be held bound to repay the cost of construction under the terms of the Reclamation Act.

2nd. That satisfactory arrangements be made and agreements completed for the adjustment of water rights, or for options to purchase certain properties and rights, notably those of the Stony Creek Irrigation Company, and of the Lemon Home Water and Light Co.

3rd. That satisfactory arrangements be made for the purchase of lands needed for reservoir purposes.

4th. That the owners of the lands agree to subdivide and sell their holdings in excess of 160 acres, in farm units of not to exceed 40 acres.

These conditions have all been met in a satisfactory manner:

1st. 12,000 acres have been pledged to the Water Users' Association organized under the project.

2nd. Contracts have been executed for the purchase of the irrigation system of the Stony Creek Irrigation Company and of the Lemon Home Water and Light Company, which are now on the way to Washington for your approval. A contract has also

been executed by the Central Canal and Irrigation Company, which diverts water from Stony Creek below the project. The purpose of this contract is to adjust between the United States and this company their respective claims to the waters of Stony Creek.

3rd. Satisfactory arrangements have been made for the purchase of the lands needed for reservoir purposes.

4th. The owners of the unit now to be developed have agreed to subdivide and sell their holdings in excess of 160 acres in farm units not to exceed 40 acres.

Inasmuch as some of the options taken to meet the conditions of land ownership will expire on the 15th of this month, it is important that the approval of the project be given as soon as practicable, in order that the parties holding these options may exercise them.

The contracts with the companies mentioned have been carefully examined by the officers of the Reclamation Service and are in proper form to protect the interests of the Government.

In order that there may be no further delay, and as any minor adjustments which may be necessary in connection with these contracts will not be material, I recommend that the allotment of \$650,000 be made definite, the conditions having been fulfilled, and that the project be approved for construction.

Very respectfully,

(Signed) A. P. DAVIS,  
*Acting Director.*

Action taken as recommended October 5, 1907.

(Signed) JAMES RUDOLPH GARFIELD,  
*Secretary.*

# OWYHEE PROJECT

OFFICE OF THE SECRETARY,  
*Washington, October 9, 1926.*

THE PRESIDENT,  
THE WHITE HOUSE.

MY DEAR MR. PRESIDENT: Section 4 of the Act of June 25, 1910 (36 Stat., 835) provides in effect that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat., 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features requiring investigation and report under Subsection B, Section 4, Act of December 5, 1924, *supra*, will be discussed in the order in which presented in that subsection, as follows:

## WATER SUPPLY

*Source.*—Owyhee River. Has a mean annual flow of 1,004,000 acre-feet, the maximum yearly flow being 2,300,000 acre-feet and minimum 350,000 acre-feet. Small summer flow fully used by Owyhee Ditch which requires supplemental water. Future depletion by upstream developments amounting to 30,000 acre-feet annually allowed for. Project requirements 636,000 acre-feet annually, including Owyhee Ditch lands.

Shortages in period of 21 years, 54% 1924, 16% 1915, 11% 1905.

The shortages referred to above are based on the assumption that the maximum acreage will be irrigated, and may be eliminated by decrease of acreage. If there is no increase of acreage, it would be possible to increase the water supply by raising the height of the dam a few feet and increasing the carry-over capacity, which could be done at slightly greater expense.

*Storage capacity.*—Dead storage for diversion elevation 406,000 acre-feet; live storage 595,000 acre-feet at Hole-in-Ground Reservoir Site.

## ENGINEERING FEATURES

*Storage-Diversion dam.*—Concrete arch, 355' high above foundation, 600' long on top, 405,000 cubic yards concrete, channel spillway with 30,000 second-foot capacity.

*Main canals.*—Outlet from reservoir is 15' diameter, tunnel  $3\frac{1}{2}$  miles long to division works. Succor Creek branch to supply Gem District and adjacent lands has tunnel  $4\frac{1}{2}$  miles long, 10.2' diameter followed by 60 miles of canal principally in earth. From division works the main canal continues 4 miles including 1,500 feet of tunnel, 8,000 feet of concrete flume and a 900 foot steel siphon 114" in diameter. From the end of the main canal, Mitchell Butte Canal with maximum capacity of 1,203 second-feet crosses Owyhee River with siphon 9' diameter 1,730 feet long and continues 60 miles northerly largely in earth to Malheur River. From end of Mitchell Butte Canal, Dead Ox Flat Canal crosses Malheur River with 8' diameter steel siphon,  $2\frac{1}{2}$  miles long, capacity 445 second-feet, thence northerly 35 miles in earth canal to the end opposite the town of Weiser, Idaho.

*Drainage.*—A total of \$993,000 is included in the construction estimate for drainage in all divisions.

## COST OF CONSTRUCTION

### Cost by Features

Storage and diversion.....	\$6,111,815
Main canals .....	9,506,785
Laterals .....	1,103,400
Drainage .....	993,000
Total .....	17,715,000

## TOTAL COST

As shown above, the total cost of \$17,715,000 is for actual construction only, and does not include items for "Operation and Maintenance during construction," "Land Surveys," and "Investigations." An allowance of \$285,000 has been made to cover the cost of the above items, bringing the gross cost to \$18,000,000.

### LAND PRICES AND PROBABLE COST OF DEVELOPMENT

The Owyhee project comprises about 124,000 acres of irrigable land in the States of Idaho and Oregon. Of this about 70,000 acres are new land covered with sagebrush and other desert plants, but are not farmed because of the low rainfall. Some 41,000 acres are in districts irrigated from the Snake River by means of pumps and 13,000 acres are under the Owyhee Ditch, which has an insufficient water supply. Fifty-four thousand acres, or more than one-third of the land in the project is therefore settled, improved and is now being irrigated.

The unsettled, unimproved, excess lands of this project have been appraised by a competent board which has fixed an average selling price of \$7.42 an acre for all lands of the project and an average of \$10.20 an acre for the irrigable portion thereof. The contracts with the districts and individual landowners require that these prices be adhered to in selling excess land to new settlers. Settlers who are allotted public land will be required to have some capital and farming experience. Application of these principles in settling this project will tend to eliminate some of the obstacles to farm development of the past.

### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land embraced in the project is of more than average fertility. Rough land and poor soil have been eliminated. The retained land can be prepared for the effective application of water. If properly prepared for irrigation and properly cultivated, good yields of all crops grown in this locality are assured. With care in the selection of settlers, with farms suitably improved and equipped, success in farming may be anticipated.

### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The next declaration required is that the cost of construction will probably be returned to the reclamation fund. This is interpreted to mean that it will be returned within the period fixed in the contract with the Owyhee district, which is in forty years from the time the public notice, that the works are completed, is issued by the Secretary. The works can be completed in five years from June 30, 1927, if Congress will appropriate the necessary money. If completed in 1932, public notice could be issued which would require payments to begin in 1933, and this would give irrigators until 1973 to complete their payments.



The construction costs of this project will vary with the classification of the land, but the average will probably be about \$160 an acre, making the average yearly payment \$4 an acre. To this will have to be added the expense of operation and maintenance, and the question which we have to consider is, can irrigators meet this operation cost and an annual construction payment, varying between \$3 and \$6 an acre, depending on the class in which a particular farm is placed?

While this is a higher construction payment than has been made on older projects like Boise, Minidoka, Strawberry Valley and North Platte, where conditions of soil and climate approximate those at Owyhee, the total yearly charge will be considerably less than is now being paid by irrigators under the pumping units of this project or on many other private projects. It is believed, therefore, that improvements in methods of development and in agricultural practices which may be expected will increase incomes and ability to meet the required payments on the Owyhee project.

The unwise and immensely injurious effect of land speculation on older projects will be forestalled at Owyhee by the appraisal made of the surplus land and fixing in advance the price settlers are to pay. Provision for giving settlers practical advice for working out crop programs and for the selection of settlers on the public land of the project, all of which are now authorized by law, will help hasten farm development and increase the earnings of farmers.

Settlers on this project will begin the development of farms under the following favorable conditions: Increase in agricultural production in the Nation is not keeping pace with increase in population. They will realize at the outset that their farms must be intensively cultivated and will be helped to organize for co-operation in production and marketing.

The favorable conditions heretofore recited and the newly established policy of the Bureau justify the belief that this project will return the cost thereof.

Because of the urgent need for a larger and cheaper water supply by the settlers on 54,000 acres of this area, because the unimproved land is fertile, suited to the needs of settlers and appropriate for development under the reclamation law, and because the development of this area is destined to greatly benefit the Nation, I recommend its approval and the issuance of the necessary authority to this Department to make contracts for its construction, and to proceed with the work.

Very truly yours,

(Signed) HUBERT WORK.

Approved October 12, 1926.

(Signed) CALVIN COOLIDGE,  
*President.*

# PALISADES PROJECT

BUREAU OF RECLAMATION,  
*Washington, November 1, 1941.*

The SECRETARY OF THE INTERIOR.

SIR: Under authority of the Reclamation Act of June 17, 1902 (32 Stat. 388), the Bureau of Reclamation conducted extensive studies of possibilities of alleviating severe water shortages and heavy crop losses which occur in the Upper Snake River Valley in low-water years. Crop losses in the 1,200,000 acres of land receiving water from the Snake River and its tributaries above Milner, Idaho, have ranged from \$1,000,000 to \$7,000,000 in years of critical shortage.

The report of the Bureau of Reclamation, which is attached, proposes the construction of the Palisades Dam Project, including a dam about 260 feet high and 2,200 feet long at the crest on the South Fork of the Snake River at the Palisades site about 50 miles east of Idaho Falls, Idaho, designed to create a reservoir of a capacity of 1,420,000 acre-feet; including at the dam a power plant with a capacity of 30,000 kilowatts or more, if summer water is used to produce a maximum amount of seasonal power, and transmission lines; and a water conservation program involving the drilling of wells and installation of appurtenances for rural domestic and stock water supplies, and other water conservation features and methods. A series of levees between Heise and Roberts, Idaho, will be required to complete the flood-control phase of the project.

The storage space is allocated as follows: The upper 500,000 acre-feet primarily for flood control; the next 800,000 acre-feet primarily for irrigation use; and the lower 120,000 acre-feet for dead storage to provide power head. The proposed reservoir will provide a total space of 900,000 acre-feet for flood-control purposes when needed. The space available for irrigation purposes will provide an annual yield of 255,000 acre-feet of water from the surplus flow of the Snake River and through conservation of water now wastefully used.

The Palisades Dam project, as outlined, can be constructed at an estimated cost of \$24,092,000 allocated as follows:

	Total construction cost	Allocation to		
		Irrigation	Flood control	Power development
Dam and reservoir.....	\$18,125,000	\$7,794,000	\$7,431,000	\$2,900,000
Power plant, etc.....	2,811,000	—	—	2,811,000
Water-conservation program <sup>1</sup> ..	2,422,000	2,422,000	—	—
Channel improvement <sup>1</sup> .....	734,000	—	734,000	—
Total .....	24,092,000	10,216,000	8,165,000	5,711,000

<sup>1</sup> Expected to be undertaken individually.

The irrigators of the Upper Snake River Basin can repay the construction cost allocated to irrigation and pay the operation and maintenance cost of the irrigation feature of the project as contemplated by the reclamation laws.

The estimated annual revenues to be received from the sale of power from the Palisades project exceed the amount necessary to meet the requirements of subsection (c) of section 9 of the Reclamation Project Act of 1939 (53 Stat. 1187).

The benefits to be received from the flood-control features of the project exceed the estimated cost of these features. The report of the Bureau was submitted to the Chief of Engineers, War Department, for his opinion regarding the flood-control value of the Palisades Reservoir. In a letter dated May 2, he stated:

The plans and estimates of costs and benefits are in full agreement with studies made by this Department, report upon which will soon be made to Congress. I accordingly wish to advise that construction of the Grand Valley Reservoir, substantially as outlined in the report of the Bureau of Reclamation, and its operation in such manner as to provide for the reservation of not less than 500,000 acre-feet of storage space primarily for flood-control use, would effectively control floods in the irrigated area east of Idaho Falls, and that in my opinion a charge of \$7,431,000 toward the first cost of the reservoir, in the interest of flood control, is justified.

Growing defense needs in the area, as reflected in Federal Power Commission estimates, emphasize the need for this additional source of power. Possibilities connected with development of minerals, particularly phosphate, in the vicinity might soon render this project of strategic importance.

The annual benefits to be derived from the construction of the Palisades project exceed the annual costs and the project clearly meets all requirements of the Reclamation Act of June 17, 1902 (32 Stat. 388), and the Reclamation Project Act of 1939 (53 Stat. 1187). The project is desirable in the public interest. Its success, however, depends on the conservation of 135,000 acre-feet of water now wastefully used, and on the willingness of the irrigators to pay \$1 per acre-foot per annum for the stored water which they will use. These matters can be adjusted in future negotiations, and construction should not be initiated until appropriate assurances have been received. I, therefore, recommend that you find the project feasible. I further recommend that the finding and the report be transmitted to the Congress in compliance with the provisions of the Reclamation Project Act of 1939.

Respectfully,

(Signed) JOHN C. PAGE,  
Commissioner.

THE SECRETARY OF THE INTERIOR,  
*Washington, December 9, 1941.*

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I am submitting with this letter the Reclamation report on the Palisades Dam project on the South Fork of the Snake River near Idaho Falls, Idaho. The report consists of a letter, dated November 1, to me from the Commissioner, Bureau of Reclamation, the engineering and economic report transmitted with that letter, and this, the finding with respect to the feasibility of the project.

The Palisades Dam project is a multiple-purpose project involving major irrigation, flood control, and power benefits, and contemplating, as a part of the irrigation phase, the conservation of a large amount of water, which is now wastefully used. This conservation will be effected through a program of well drilling, and installation of appurtenances and other features to provide rural culinary and stock water.

The project is estimated to cost \$24,092,000, including an item of \$2,422,000 for water-conservation measures and another item of \$734,000 for channel improvements. These two features are expected to be undertaken individually. The Palisades Dam and Reservoir will cost \$18,125,000, and the power plant and transmission facilities, \$2,811,000.

The total cost, when considered in relation to the services rendered by the project, logically can be broken down and is allocated as follows:

Irrigation .....	\$10,216,000
Flood Control .....	8,165,000
Power .....	5,711,000

As contemplated in Section 9 (b) of the Reclamation Project Act of 1939 (53 Stat. 1187), the benefit of consultations with the War Department was obtained in arriving at the cost properly allocable to flood control.

I find that the project as outlined by the Bureau of Reclamation is feasible from an engineering point of view, that it is desirable in the public interest, that it will improve the economic welfare of the area, and that it will prevent damages and increase the security of many people living in areas now endangered by floods.

The part of the cost allocated to irrigation can be returned to the Government in conformity with the reclamation laws. The part of the cost allocated to power may with assurance be expected to be returned in conformity with those laws, and in addition, power may be expected to serve growing defense needs.

I find that the repayable and returnable allocations, together with the allocation to flood control, equal the estimated cost of construction.

Defense requirements for power in the area to be served, more-

over, have demonstrated an increasing need for additional electric generating capacity.

The Palisades Dam project clearly meets all the requirements imposed by Section 9 of the Reclamation Project Act of 1939 and, consequently, is authorized for construction as a Reclamation project.

The Director of the Bureau of the Budget has informed me that there would be no objection to the submission of this report to the Congress. He added, however, that "it would not be in accord with the program of the President, in the absence of evidence showing that the proposed works possess important defense value, to submit any estimate of appropriation for the construction of the project during the present emergency. It also would be contrary to the program of the President to submit any such estimate until local interests have given satisfactory assurance to the Secretary of the Interior that they will eliminate the wasteful use of water in the area to be affected by the project."

Very truly yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1945

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1945, and for other purposes. (Act June 28, 1944, 58 Stat. 463, 466 and 486-491, Public Law 369, 78th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1945, namely:

\* \* \* \* \*

Construction. For continuation of construction, and for general investigations and administrative expenses, of the following projects in not to exceed the following amounts, respectively, to be expended from the Reclamation Fund in the same manner and for the same objects of expenditure as specified under the caption "Bureau of Reclamation," under the head "Administrative provisions and limitations," but without regard to the amounts of the limitations therein set forth, all to be reimbursable under the Reclamation law, and to remain available until expended.

Palisades project, Idaho, \$250,000.

# PALOUSE PROJECT<sup>1</sup>

SPOKANE, WASHINGTON, *October 23, 1904.*

Mr. F. H. NEWELL,  
*Chief Engineer, U. S. G. S., Washington, D. C.*

DEAR SIR: We, the undersigned, have completed an inspection of the Palouse Irrigation Project in Eastern Washington as surveyed and developed for the United States Reclamation Service under the direction of T. A. Noble, District Engineer.

The project contemplates the irrigation of 100,000 acres of land located East of the Columbia River and North of the Snake River and near the junction of the two.

Water supply to be obtained from the Palouse River drainage basin.

We have carefully considered all the surveys, maps, hydrographs, plans and statistics furnished by Mr. T. A. Noble, and have visited all the controlling features of the project, irrigable lands, storage sites, diversion sites, feed and distribution canal locations.

*Elevation of lands.*—The main body of land to be irrigated is located at an elevation of between 350 and 600 feet only above sea level.

*Topography.*—The topography of a portion of the irrigable lands is quite rough, areas varying from a few hundred square feet to acres having a maximum depression of from a few feet up to 10, and possibly in some cases, 20 or more feet. There are also a few areas isolated and elevated above their surroundings.

*Soil.*—The lands are mostly covered with a growth of sage brush and compared with lands of similar general composition and character on the opposite side of the river at Kennewick now being irrigated and producing crops, will be unusually productive. Their elevation and the local climatic conditions insures a long growing season exceptionally favorable for vegetation, conditions combining to make possible and easy the growing of a great diversity of crops producing very large yields.

*Basis of area.*—Although practically all the lands commanded by the proposed distribution system may, and probably will, ulti-

<sup>1</sup> The *Palouse Project* was found feasible under the original Reclamation Act prior to its amendments, but later reclassified as a secondary project.

mately be made irrigable—the depressions by drainage and the isolated elevated areas by carrying water to their highest points in closed pipes of cement or vitrified clay—we have thrown out, 20 percent of the total area of land under the gravity system from our estimate of available area.

*Basis of estimate.*—The storage, diversion, conduction and main distribution works have been planned and estimated with the capacity adequate to the entire land area under the gravity system. Ninety thousand acres of these lands are located in a compact body adjacent to the two rivers, 5,000 acres along Esquatzel Coulee and 5,000 at the head of Washtucna Coulee.

*Ownership of lands.*—The ownership of these lands is as follows:

About 50 percent Northern Pacific Railway, 13 percent desert entry, 10 percent private and 27 percent public domain.

*Water supply.*—The hydrographs of the annual run-off from the Palouse River drainage basin covering a period of seven years show that the lowest quantity of water which could be availed of by the proposed storage and distribution works in any single year would amount to 315,000 acre feet.

*Water storage and conduction.*—It is proposed to utilize Washtucna Coulee for a main storage reservoir, by constructing a dam with a maximum height of 43 feet across the lower end of the Coulee, which would give a storage of 205,000 acre feet above an elevation of 830 feet.

It has been found that a diversion canal with a capacity of 800 s.f. 25 miles long is required, and adequate, to conduct the regulated run-off from Palouse drainage basin into Washtucna Coulee. It is proposed to regulate the flood run-off from Palouse drainage basin by converting Rock Lake on one of the head waters into a reservoir with a storage capacity of 90,000 acre feet.

*Main distribution.*—From Washtucna reservoir the water will be conducted down through Esquatzel Coulee in a canal with a capacity of 1,000 s.f. some 18 miles long to Eltopia, the point of main distribution diversion, from where two main lateral canals will diverge following around on the 600 foot contour toward the Columbia and Snake Rivers respectively.

*Duty of water.*—It has been estimated by T. A. Noble that a depth of 3 feet of water delivered on the land will be sufficient for the irrigation season from April to October, inclusive.

*Total available water supply.*—The statistics of run-off, storage and conduction system as measured, planned and estimated for, will provide 380,000 acre feet of available supply annually, which quantity it is believed will be adequate for the ultimate requirements for 100,000 acres of land.

*Power.*—Along the line of the diversion canal between Palouse River at Hooper and the Washtucna reservoir with flood run-off supply regulated in Rock Lake reservoir and storage as provided in Washtucna reservoir below, there will be 4,000 horsepower minimum constant development possible at practically only the expense of constructing, operating and maintaining 4 hydroelectric generating plants.

*Pumping.*—In addition to the gravity irrigable lands already referred to, there are 20,000 acres of excellent land that can be reached by pumping, using the water in the canal between Connell and Eltopia to pump water about 100 feet high.

*Cost.*—We estimate the cost of constructing the works required for and contemplated in this project and operation and maintenance of the same during the first ten years to be between \$35 and \$40 per acre.

*Conclusions.*—We believe the Palouse Project feasible.

We believe the land to be irrigated will all be rapidly taken up at the cost to be assessed and we further believe that settlers can afford to pay the price.

*Recommendations.*—We recommend that an immediate understanding be had with the Northern Pacific Railway Company and that an agreement be obtained if possible, providing for the sale of their remaining lands to bona fide settlers under the Reclamation Act at not to exceed \$1.25 per acre. We recommend the organization of a Water Users' Association of all the private land owners under the Palouse Project. We recommend that negotiations be taken up at once to quiet the adverse claims for water rights, power rights and required rights of way.

When all these recommendations have been carried out, we recommend that the Palouse Project be put under construction. We now recommend that surveys of the Esquatzel Coulee be continued to that point where it will be possible to show the officials of the Northern Pacific Railway exactly where crossings and elevations of their main line will be required and to get from them an agreement of their acquiescence and cooperation in such changes with right of way where required and the construction of such crossings or alterations of their railway at their own expense when approved by the Chief Engineers of the Reclamation Service and the Northern Pacific Railway Company.

We also recommend that surveys of canals be completed and such topography taken in connection therewith on a scale of 100 feet to the inch as are necessary for the paper location, and accurate estimate of the cost of such canals, also that maps of the necessary sites for dams and regulating works be made on a large scale so that accurate designs and estimates of such works can be made. Also that test pits and diamond drill borings, where necessary, be made at such sites, so that a complete and final estimate of the cost of this entire project can be made early in the Spring of 1905.

Respectfully submitted,

(Signed) H. N. SAVAGE,  
Supervising Engr.  
J. H. QUINTON,  
Consulting Engr.  
T. A. NOBLE,  
District Engr.



NOVEMBER 5, 1904.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Investigations have been carried on by the Reclamation Service during the past year looking to the development of an irrigation project in the southeastern part of the State of Washington. This project contemplates the construction of a small storage reservoir at Rock Lake on the drainage of the Palouse River, and the diversion of the Palouse River into a reservoir site located on adjacent drainage, known as the Washtucna reservoir.

The project contemplates the irrigation by gravity of about 80,000 acres of land just above the junction of the Snake and Columbia rivers. In its ultimate development it will also serve about 20,000 acres more by pumping.

Investigations of this project have proceeded to a point where the general plan and estimates have been considered by a board of consulting engineers who have reported to this office, under date of October 23. They pronounce the project feasible and advise its early construction. They also recommend that negotiations be taken up at once to quiet the adverse claims for water rights, power rights or required rights of way, also that more complete surface borings for foundations and other investigations be pushed with the object of early construction. The recommendations of the board of engineers are approved by this office.

The above-mentioned Washtucna reservoir site is traversed by a spur of the Oregon Short Line railroad, and its utilization requires the removal of this railway, which is the most important matter for negotiation to be taken up. Minor matters are those incident to most reclamation projects, such as right of way for canals and reservoirs on private land, claims of water rights, etc. It is estimated that the cost of this project will be about \$35 per acre upon the land to be irrigated including the necessary rights of way, damages, etc. This is little, if any, more than one-half of the value of the land with water rights and the project is considered an attractive one from a financial point of view.

I have to recommend that this project receive your preliminary approval and that authority be granted this office to push investigations to completion and to negotiate for the necessary rights and privileges, and to place the results of such negotiations before the Department for your approval.

Very respectfully,

(Signed) CHAS. D. WALCOTT,

DEPARTMENT OF THE INTERIOR,  
*Washington, November 14, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of the 5th instant to the Department, you reported the results of recent investigations by the Reclamation Service, looking to the development of an irrigation project in the southeastern portion of the State of Washington.

It appears that this, the Palouse Project, contemplates the construction of a storage reservoir at Rock Lake, on the drainage of the Palouse River, and the diversion of the waters of that river into a reservoir site, located on adjacent drainage, known as the Washtucna reservoir, and that about 80,000 acres of land above the junction of the Snake and Columbia rivers will thereby become subject to irrigation by gravity; and that a further area of 20,000 acres may be ultimately irrigated by pumping.

You have stated that a board of consulting engineers has pronounced the project feasible and has advised its early construction, the estimated cost of the project being about \$35 per acre, including all outlay, which cost you have stated is little more, if any, than one-half of the value of the land with water rights.

In view of the foregoing and of other facts and considerations brought to my attention, you have recommended that the project receive preliminary approval, and that authority be given your office to push investigations to completion, and to negotiate for the necessary rights and privileges, and to place the results of such negotiations before the Department for approval.

I have considered your presentation of this matter and I hereby approve your recommendation as made, and hereby authorize you to proceed with the investigations and negotiations as set forth in your letter.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# PAONIA PROJECT

OFFICE OF THE SECRETARY,  
*Washington, March 16, 1939.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The acts of June 25, 1910 (36 Stat. 835), and December 5, 1924 (43 Stat. 701), provide, in effect, that no irrigation project to be constructed by the Bureau of Reclamation under the Reclamation Law shall be undertaken (1) until the Secretary of the Interior (a) has obtained detailed information concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development of the project, and (b) has made a finding in writing that the project is feasible, is adaptable for actual settlement and farm homes and will probably return the cost thereof to the United States; and (2) until the project has been recommended for construction by the Secretary and approved by the President.

The following report on the Paonia project in Delta and Gunnison Counties in west central Colorado is made to you, in accordance with the foregoing statutory provisions.

The lands to be benefited by the project lie on both slopes of the Valley of the North Fork of the Gunnison River near the towns of Paonia and Hotchkiss, and have been irrigated and intensively cultivated for many years, the first water filing having been made in the early 1880's. Peaches and small fruit will be the most important crops, and orchards now cover about 26 percent of the irrigated lands. The farms are well improved and are under production so far as the uncertain water supply will permit. The present irrigation supply is derived from the North Fork and its tributaries, supplemented somewhat by storage in a few small reservoirs. The supply is inadequate in practically all years and in the driest years serious crop failures are incurred.

Land prices vary largely according to location with respect to improved highways and towns and to the quality of the soil, whether adapted to forage crops or orchards. The value of irrigated land ranges from fifty dollars an acre for ordinary cultivated areas to several hundred dollars per acre for producing orchard tracts.

The principal features proposed to be constructed are two stor-

age reservoirs on tributaries of the North Fork. One of these will be located at the Horse Ranch site on Anthracite Creek, and the other at the Beaver site on the East Fork of Minnesota Creek. The Horse Ranch dam will be a rolled earth fill, 100 feet in height and 1,200 feet in crest length, and is estimated to cost \$660,000. The Beaver dam will be a rolled earth fill, approximately 140 feet high and 900 feet long, having an estimated cost of \$334,000.

The Horse Ranch reservoir of 8,500 acre-feet capacity, will furnish a supplemental supply to an area of 5,682 acres, located on the north side of the North Fork Valley, known as the Fire Mountain division. The Beaver reservoir, of 1,900 acre-feet capacity, will provide a supplemental supply to the Minnesota division, lying on the south side of the Valley and on Minnesota Creek. The supplemental supply of water, made possible by the project development, will prevent crop loss in practically all years and will, as well, permit the growing of late potatoes and other specialty crops.

The construction cost will be repaid by the sale of water for irrigation purposes. Organizations of the landowners on each of the divisions will be required to execute repayment contracts before any construction is initiated.

The annual cost to the Fire Mountain division for construction repayment and reservoir operation, maintenance, and district expense is estimated to be \$19,500. Based on a division area of 5,682 acres, the annual costs would be \$3.43 per acre per year. This cost is well within the ability of these lands to repay.

The annual cost to the Minnesota division, including construction repayment and reservoir operation, maintenance, and district expense, is estimated to be \$10,000. Based on a division area of 2,100 acres, the annual cost would be \$4.75 per acre per annum. This amount can be repaid by land in mature orchards or sugar beets. However, it may be necessary to draft the contracts with these water users to provide for smaller payments during earlier years and larger payments after the lands are planted to higher priced crops.

The foregoing data justify the conclusion that construction of the Fire Mountain division is feasible from an engineering and economic standpoint and I so find and declare. Construction of the Minnesota division is feasible from an engineering standpoint but it probably will be necessary to draft the contracts in the manner described above. On this basis, the construction charges probably can be repaid within forty years without undue burden.

In order to provide a supplemental supply of water for lands now encountering shortages each year and in order to stabilize the agricultural industry in this area without undue delay, I recommend that the Paonia project be approved and that construction be started at an early date.

Sincerely yours,

(Signed) E. K. BURLEW,  
*Acting Secretary of the Interior.*

Approved March 18, 1939.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

BUREAU OF RECLAMATION,  
*Salt Lake City 8, Utah, January 2, 1946.*

From: Regional Director, Region 4, Salt Lake City, Utah  
To: The Commissioner, Bureau of Reclamation  
Subject: Report on Paonia project, Colorado—Upper Colorado River Basin.

1. This letter is the regional director's report on the potential Paonia project on the North Fork of the Gunnison River in west central Colorado. The substantiating material on which this report is based is appended hereto.

\* \* \* \* \*

30. Since the Paonia project has engineering feasibility, is economically sound, and is desirable in the regional and national interest, it is recommended:

(1) That the revised plan of development for the Paonia project as described in this report be approved.

(2) That the three principal features listed in paragraph 15, and such related works as may be incidental thereto, constituting the development of the Paonia project in the Colorado River Basin in Colorado, be authorized to be constructed, operated and maintained by the Bureau of Reclamation, Department of the Interior, essentially in accordance with the plan set forth in this report, with such modifications, omissions, or additions to the works as the Commissioner of Reclamation, with the approval of the Secretary, may find proper for carrying out the project to the end of providing water for the irrigation of approximately 14,750 acres in the areas indicated in this report and of accomplishing the flood-control purposes of the project.

(3) That the project be authorized to be constructed, operated, and maintained in accordance with the Federal reclamation laws (act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto): *Provided*,

(a) That this report shall be deemed to satisfy the requirements of the Federal reclamation laws governing the submission to the President and the Congress of a finding of engineering feasibility;

(b) That the allocation of costs shall comprehend the estimated cost of all of the works proposed in this report to be constructed by said Bureau for development of the Paonia project;

(c) That the water users shall be required to pay only that part of the estimated construction cost of the project which, in the judgment of the Secretary of the Interior upon consideration of all appropriate factors, they should reasonably be expected to repay in the maximum repayment period and on terms and conditions available under provisions of subsection 9 (d) of the Reclamation Project Act of 1939;

(d) That the excess, if any, of the total estimated cost of all

works proposed in accordance with this report to be constructed by said Bureau for development of the Paonia project over the aggregate of the estimated repayments and returns, together with the excess, if any, of actual costs over total estimated costs, shall be nonreimbursable.

(4) That use of the unexpended balance (\$848,470.50) of the total reimbursable fund of \$900,000 heretofore appropriated for the Paonia project from the Reclamation Fund in the Interior Appropriations Acts of 1940 and 1942 be authorized to begin construction immediately of the works under the revised plan of development described in this report and that this fund be supplemented by new appropriations as required for proper development of the project.

(Signed) E. O. LARSON,  
*Regional Director, Region 4.*

BUREAU OF RECLAMATION,  
*Washington, May 16, 1946.*

The SECRETARY OF THE INTERIOR.

SIR: I submit herewith my report on the Paonia project, Colorado. The project is located in the valley of the North Fork of the Gunnison River, a tributary to the Colorado River in west-central Colorado.

A project, known as the Paonia project, Colorado, was authorized in 1939. It consists of the Horse Ranch Dam, on Anthracite Creek, and Beaver Dam, on the East Fork of Minnesota Creek. The Congress, in the Interior Department Appropriation Act of 1940, appropriated \$300,000 for that project. An additional sum of \$600,000 was appropriated for that project in the Interior Department Appropriation Act of 1942. These amounts were appropriated from the reclamation fund and are reimbursable under the Federal reclamation laws. However, no part of the project has been constructed, since core drillings, made after the project was authorized, showed that the dam sites were more costly and less attractive than preliminary investigations had indicated.

Further investigation has resulted in the development of the plan proposed in the attached report. The works now proposed involve the construction of the Spring Creek Dam on Muddy Creek, a tributary to the North Fork of the Gunnison River, to form a 14,000 acre-foot reservoir which would control and supply water for the supplemental irrigation of lands under the Fire Mountain canal; the enlargement and extension of the Fire Moun-

tain canal, which diverts water from the North Fork of Gunnison River; and the reconstruction and enlargement of the Overland canal, which diverts water from Leroux Creek to the Redlands Mesa. The development would provide a supplemental water supply for 12,750 acres of cultivated land now inadequately irrigated and a water supply for 2,000 acres of new land. Local flood protection also would be provided.

If the Paonia project is constructed in accordance with the revised plans outlined briefly in the preceding paragraph, economic conditions in the valley of the North Fork of the Gunnison River will be improved and provision will have been made for normal growth in future years. Irrigation is well established in the valley, but over 65 percent of the 21,000 acres now under irrigation suffer water shortages of varying degrees in practically all years and, in dry years, serious crop failures are experienced.

The project is feasible from an engineering standpoint, and it is economically justified. The regional director finds a favorable ratio of benefits to costs of 2.6 to 1, based on 1940 costs estimated at \$1,521,000. Even under present costs, which are about 60 percent higher than 1940, there is a favorable ratio of benefits to costs of better than 1.6 to 1.

Accordingly, I recommend that you adopt the attached report as your proposed report on the Paonia project and that you authorize me, in your behalf, to transmit copies of this letter and of the attached proposed report, to the affected State of Colorado and to the Secretary of War, in accordance with requirements of the Flood Control Act of December 22, 1944 (58 Stat. 887). Upon clearance with the affected State and with the Secretary of War, copies of the report together with the comments received, if any, will be submitted for your transmittal to the President and, subsequently, to the Congress.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved May 23, 1946..

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

BUREAU OF RECLAMATION,  
*Washington, May 9, 1947.*

THE SECRETARY OF THE INTERIOR.

SIR: On May 16, 1946, I transmitted to you a report on the Paonia project, Colorado, which was adopted by Acting Secretary

Chapman on May 23, 1946, as the proposed report of the Secretary of the Interior. Copies of the proposed report were then sent to the Secretary of War and to the State of Colorado, pursuant to the provisions of section 1 of the Flood Control Act of 1944 (58 Stat. 887). Copies were also sent to the Federal Power Commission and the Department of Agriculture. The written views of each agency have been received and a copy of each letter is enclosed herewith. The State of Colorado desires and recommends construction of the project with certain changes in the repayment plan. The interested Federal agencies advise that constructing the project will not duplicate or interfere with any of their plans.

Section 9 (b) of the Reclamation Project Act of 1939 provides that—

In connection with any new project, new division of a project, or supplemental works on a project there may be allocated to flood control or navigation the part of said total estimated cost which the Secretary may find to be proper.

It provides, also, that—

In connection with the making of such an allocation, the Secretary shall consult with the Chief of Engineers and the Secretary of War \* \* \*

Such consultation has taken place. The Secretary of War and the Chief of Engineers have advised, in effect, that, unless the proposed Spring Creek Reservoir is to be operated in accordance with regulations prescribed by the Secretary of War, as provided for in section 7 of the Flood Control Act of 1944, it would not be appropriate to allocate part of the cost of its construction to flood control. On the other hand, counsel for this Bureau advise that authority to allocate costs to flood control under section 9 (b) of the Reclamation Project Act of 1939 is not dependent upon the allocation of flood control space in reservoirs and that the requirements of section 7 of the Flood Control Act of 1944 do not become effective, with respect to Federal Reclamation reservoirs, unless there is an allocation of space therein exclusively for flood control purposes.

It is perfectly clear to us that the mere fact that a portion of the cost of a project has been allocated to flood control does not necessarily mean that any portion of the storage provided has been or should be so allocated. If the Spring Creek Reservoir is operated as proposed in appendix E<sup>1</sup> to the regional director's report, the entire active storage capacity of 13,000 acre-feet would, in effect, be used jointly for flood control and irrigation, and, seasonably, in the winter and spring, the period during which all flood flows of any consequence (without exception such flows have resulted from spring melting of snow accumulated on the watershed, accelerated by warm rains or warm winds) have always occurred, heretofore, the storage would be used entirely for flood control until the danger of flood is past. The position ap-

<sup>1</sup>Not printed.



parently taken by the Secretary of War is contrary to the experience gained by the Bureau in the operation of many reservoirs for irrigation used primarily, over many years. Definite, measurable reductions of flood peaks are obtained simply by the regulation and retardation effects of a reservoir on a stream, and the beneficial effects of such reservoirs can be greatly increased through evacuation of storage space in anticipation of high spring run-off, the extent of which is estimated by surveys of the snow cover in the watersheds above the reservoir. The flood-control benefits indicated in the report would result from the seasonal method of operation proposed in the report. The average annual benefit computed takes account of the seasonal type of operation. Hence, the flood-control benefits claimed are assured and the proposed allocation of \$32,000 to flood control is justified.

The Secretary of Agriculture, in commenting on the report, agrees that the project is a worth-while one, and believes that the extent of present irrigation development in the area justifies improving the water supply. He states that the Department of Agriculture, through its control of the national forest lands which comprise the bulk of the watershed of East Muddy Creek, will assist in developing more intensive watershed management by reducing the use of this watershed for grazing, thus assuring the maximum serviceable life of the existing and proposed irrigation facilities.

The Secretary also has suggested that a more detailed treatment of the land and water use phases of the project will be essential to a sound irrigation development. These necessary detailed studies on the land and water problems of the Paonia project are scheduled for initiation immediately following authorization. They will constitute an integral part of the preconstruction activities required for successful construction, development, and operation of the project.

As I have already pointed out, the State of Colorado has approved the report, except that it recommended that the report be appropriately modified and changed to provide for increased unit costs of water to the water users and for an extension of the repayment period (to approximately 60 years). In addition, in commenting on the Colorado River Basin report, the State of Colorado has assured us that the Paonia project will cause a depletion of water well within any ultimate allocation of Colorado River water which may be made to the State by the Upper Colorado River Basin Compact Commission.

Subsequent to my previous letter of May 16, 1946, transmitting the Paonia report to you, Public Law 732, Seventy-ninth Congress, was adopted on August 14, 1946. This act provides that the Secretary of the Interior shall make findings on the part of the estimated cost of a project which can properly be allocated to the preservation and propagation of fish and wildlife, and costs allocated pursuant to such findings shall not be reimbursable. I find that the amount of \$78,000 may be allocated to fish and wildlife. This finding has the concurrence of the Fish and Wildlife Service.

Recent price indexes for the kind of work included in the project indicate that the cost of construction may be approximately \$3,030,000, an increase of about 100 percent over the costs estimated under 1940 conditions. Of this total cost \$600,000 would be allocated or the cost of 4,000 acre-feet of storage to be provided in the Spring Creek Reservoir in excess of present needs on project lands, and will be returned to the United States through later use on other developments in the North Fork River Valley; \$32,000 would be allocated for flood control; and \$78,000 would be allocated to fish and wildlife. Thus, the remainder of \$2,320,000 would be allocated for repayment by the water users on the Paonia project lands. The water users have indicated their willingness to repay \$2.84 per acre per year for water for the Fire Mountain lands and \$1.64 per acre per year for the Leroux Creek lands, over and above the costs of operation and maintenance. This is slightly higher than the repayment ability indicated in the report, but after a careful study, I am convinced that these amounts can be paid. At these rates, the water users would be able to repay a total of \$1,382,800 of the estimated construction costs in a 40-year repayment period, or would be able to repay the allocation of \$2,320,000 in a 68-year period.

The annual benefits-to-costs ratio for this project is estimated at 1.3 to 1, under present day high construction costs, amortized in 50 years, and benefits at prewar price levels over the entire repayment period for the project.

I find that the proposed construction has engineering feasibility; that of the estimated total construction costs of \$3,030,000 at current price levels, \$2,320,000 can properly be allocated to irrigation of the project lands, \$32,000 can properly be allocated to flood control, \$78,000 can properly be allocated to fish and wildlife, and \$600,000 can be allocated to the provision of reserve storage, which can be sold or rented by the United States for use on lands not included in the proposed project; and that no part of the estimated cost can properly be allocated to power, municipal water supply, or other miscellaneous purposes.

I recommend that the Paonia project be authorized for construction in accordance with the plans set forth in the attached report of the regional director dated January 2, 1946, with such modifications as the Commissioner of Reclamation, with your approval, may find proper. I recommend that this authorization be on the basis that the water users be required to repay, during the useful life of the project and at the maximum rates which, in the judgment of the Secretary of the Interior, they may reasonably be expected to meet, that portion of the construction costs of the project which may properly be allocated to them, in addition to the costs of operation and maintenance, including replacements of project works. Should a comprehensive plan of water resources development in the Colorado River Basin be arrived at, the Paonia project should, of course, be considered as an element of that plan.

I recommend that you adopt this letter as your report on the Paonia project.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved and adopted May 12, 1947.

(Signed) OSCAR L. CHAPMAN,  
*Under Secretary of the Interior.*

## AUTHORIZATION OF PAONIA PROJECT

An act to authorize the construction, operation, and maintenance of the Paonia Federal Reclamation project, Colorado. (Act June 25, 1947, 61 Stat. 181, Public Law 117, 80th Cong., 1st sess.)

\* \* \* That the Secretary of the Interior through the Bureau of Reclamation is hereby authorized to construct, maintain, and operate, pursuant to the Federal Reclamation laws, the Paonia project, Colorado, substantially in accordance with the report of the regional director of the Bureau of Reclamation, region IV, dated January 2, 1946, as concurred in by the Commissioner of Reclamation and the Secretary of the Interior: *Provided*, That, notwithstanding any recommendations to the contrary contained in said report, all costs allocated to irrigation shall be reimbursable under the Federal Reclamation laws within repayment periods fixed by the Secretary of the Interior at not to exceed sixty-eight years.

SEC. 2. Unexpended balances of sums heretofore appropriated for the Paonia project, Colorado, authorized by finding of feasibility of the Secretary of the Interior approved by the President on March 18, 1939, are hereby made immediately available for expenditure on the Paonia project hereby authorized.

SEC. 3. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such additional sums as may be required for the purposes of this act.

# PARKER DAM POWER PROJECT

## PARKER DAM AUTHORIZED

[Extract from] An act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. (Act August 30, 1935, 49 Stat. 1028, 1039-1040, Public Law 409, 74th Cong., 1st sess.)

\* \* \* SEC. 2. That for the purpose of controlling floods, improving navigation, regulating the flow of the streams of the United States, providing for storage and for the delivery of the stored waters thereof, for the reclamation of public lands and Indian reservations, and other beneficial uses, and for the generation of electric energy as a means of financially aiding and assisting such undertakings, the projects known as "Parker Dam" on the Colorado River and "Grand Coulee Dam" on the Columbia River, are hereby authorized and adopted, and all contracts and agreements which have been executed in connection therewith are hereby validated and ratified, and the President, acting through such agents as he may designate, is hereby authorized to construct, operate, and maintain dams, structures, canals, and incidental works necessary to such projects, and in connection therewith to make and enter into any and all necessary contracts including contracts amendatory of or supplemental to those hereby validated and ratified. The construction by the Secretary of the Interior of a dam in and across the Colorado River at or near Head Gate Rock, Arizona, and structures, canals, and incidental works necessary in connection therewith is hereby authorized, and none of the waters, conserved, used, or appropriated under the works hereby authorized shall be charged against the waters allocated to the upper basin by the Colorado River compact, nor shall any priority be established against such upper basin by reason of such conservation, use, or appropriation; nor shall said dam, structures, canals, and works, or any of them, be used as the basis of making any such charge, or establishing any such priority or right, and all contracts between the United States and the users of said water from or by means of said instrumentalities shall provide against the making of any such charge or claim or the establishment of any priority right or claim to any part or share of the water of the Colorado River allocated to the Upper Basin by the Colorado River compact, and all use of said instrumentalities shall be in compliance with

the conditions and provisions of said Colorado River compact and the Boulder Canyon Project Act.

THE WHITE HOUSE,  
Washington, January 29, 1936.

Honorable HAROLD L. ICKES,  
*Secretary of the Interior.*

MY DEAR MR. SECRETARY: Section 2 of the Act of Congress of August 30, 1935 (Public No. 409, 74th Congress) provides as follows:

SEC. 2. That for the purpose of controlling floods, improving navigations, regulating the flow of the streams of the United States, providing for storage and for the delivery of the stored waters thereof, for the reclamation of public lands and Indian reservations, and other beneficial uses, and for the generation of electric energy as a means of financially aiding and assisting such undertakings, the projects known as "Parker Dam" on the Colorado River and "Grand Coulee Dam" on the Columbia River, are hereby authorized and adopted, and all contracts and agreements which have been executed in connection therewith are hereby validated and ratified, and the President, acting through such agents as he may designate, is hereby authorized to construct, operate, and maintain dams, structures, canals, and incidental works necessary to such projects, and in connection therewith to make and enter into any and all necessary contracts including contracts amendatory of or supplemental to those hereby validated and ratified. The construction by the Secretary of the Interior of a dam in and across the Colorado River at or near Head Gate Rock, Arizona, and structures, canals, and incidental works necessary in connection therewith is hereby authorized, and none of the waters, conserved, used, or appropriated under the works hereby authorized shall be charged against the waters allocated to the upper basin by the Colorado River compact, nor shall any priority be established against such upper basin by reason of such conservation, use, or appropriation; nor shall said dam, structures, canals, and works, or any of them, be used as the basis of making any such charge, or establishing any such priority or right, and all contracts between the United States and the users of said water from or by means of said instrumentalities shall provide against the making of any such charge or claim or the establishment of any priority right or claim to any part or share of the water of the Colorado River allocated to the Upper Basin by the Colorado River compact, and all use of said instrumentalities shall be in compliance with the conditions and provisions of said Colorado River compact and the Boulder Canyon Project Act.

Under the foregoing provision of law, you, through the Bureau of Reclamation under your jurisdiction, are hereby designated as my agent (1) to construct, operate and maintain dams, structures, canals and incidental works necessary to said Parker Dam and Grand Coulee Dam projects, and (2) in connection therewith to make and enter into any and all necessary contracts in-

cluding contracts amendatory of or supplemental to those validated under the above-quoted provision of law. Such contracts may be made by you, by the Acting Secretary, by the First Assistant Secretary, by the Under Secretary or by the Assistant Secretary as you may direct, or by such officers of the Bureau of Reclamation as you may designate, and any such contracts made between August 30, 1935 and the date hereof are hereby ratified and any construction work done by or under the Bureau of Reclamation during said period upon said dams, structures, canals and incidental works is hereby adopted.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

# PINE RIVER PROJECT

OFFICE OF THE SECRETARY,  
*Washington, June 17, 1937.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report on the Pine River Reclamation project in the State of Colorado is made to you under the provisions of Section 4 of the Act of June 25, 1910 (36 Stat. 835).

Section 4 of the Act of June 25, 1910 provides in effect that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, (43 Stat. 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The Pine River project contemplates the construction of a reservoir with 126,000 acre-feet of active storage capacity on the Pine River, 15 miles above Bayfield, Colorado, to supplement the late summer water supply for 34,000 acres of irrigated white and Indian lands and to permit the development of 35,000 acres of undeveloped irrigable lands under constructed ditches or minor extensions thereof located in La Plata and Archuleta counties, Colorado, with a small area in San Juan county, New Mexico.

## WATER SUPPLY

Pine River has an average annual flow of 300,000 acre-feet, derived principally from the spring melting of snows accumulated

during the winter months. The low water flow is inadequate to supply the irrigation requirements for the 34,000 acres of irrigated white and Indian-owned lands along the river. In 1930 a Federal Court decreed the Indians a prior right of 212 second-feet from the Pine River. Expansion of Indian uses is increasing shortages on the white-owned lands and will eventually take all the late summer water.

With stream regulation by storage, a full irrigation supply would be secured for the entire project area in all except occasional years of extremely low runoff when shortages as high as 50% may be anticipated. It would be uneconomical to eliminate such shortages completely. Planting of crops can be curtailed in the rare years of serious shortage, as shortages are apparent in advance of the planting season.

### ENGINEERING FEATURES AND CONSTRUCTION COST

The principal construction feature is the Vallecito reservoir to be formed by a dam of the compacted earth embankment type, with a height of 125 feet above streambed and a crest length of 4,000 feet. An open channel spillway, with a capacity of 30,000 second-feet, controlled by three 37' x 19' radial gates is to be provided on the right abutment of the dam. The cost of this dam including right of way and highway relocation around the reservoir site, is estimated as \$3,240,000.

### LAND PRICES

Of the total irrigable area of 69,000 acres, 14,000 acres are Indian-owned lands located within the Ute Indian Reservation and the remainder are white-owned lands. The 35,000 acres of undeveloped irrigable lands are covered by sage, pinion, and other desert plants, and are not farmed by reason of inadequate rainfall and lack of dependable late season water supply for irrigation purposes.

The repayment contract with the Irrigation District will provide for appraisal of the privately owned non-Indian lands on the basis of values without irrigation and for sale at the appraised values, to new settlers, of holdings in excess of the areas required for a family, with a maximum of 160 acres. Settlers on the small area of public lands will be required to have some capital and farming experience.

### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land embraced in the project is of average fertility. Rough land and poor soil have been eliminated. The retained land can easily be prepared for the effective application of water. If properly prepared for irrigation and properly cultivated, good yields of all crops grown in this locality are assured. With care



in the selection of new settlers, and with farms suitably improved and equipped, success in farming may be anticipated.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

A finding is required that the cost of construction will probably be returned to the Reclamation Fund. This is interpreted to mean that it will be returned within the maximum period fixed by Reclamation Law, which is 40 years from the time the public notice that the works are completed, is issued by the Secretary. It is anticipated that at least 10% of the capacity and cost of the reservoir will be allocated to the Indians, leaving about \$3,000,000 to be repaid by 55,000 acres of white-owned lands.

The construction costs of the project will vary with the amount of storage capacity allotted to each acre of project lands, but the average will probably be about \$55 per acre for white-owned lands, making the average yearly payment \$1.38 an acre. The additional annual cost for operation and maintenance of the reservoir and for distribution of stored water will average about \$0.22 per acre, making total average payment of about \$1.60 per acre annually. This charge should not prove burdensome.

#### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

Because of the urgent need of providing a supplemental water supply for the developed lands to prevent abandonment of lands outside of the Indian reservation because of growing shortages, I recommend that construction of the Pine River project be approved.

Sincerely yours,

(Signed) CHARLES WEST,  
*Acting Secretary of the Interior.*

Approved June 17, 1937.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# PRESTON BENCH PROJECT

BUREAU OF RECLAMATION, REGION IV,  
*Salt Lake City, Utah, September 15, 1947.*

To: Commissioner, Bureau of Reclamation  
From: Regional Director, Salt Lake City, Utah  
Subject: Preston Bench Project, Idaho.

1. Submitted herein is my report on the potential Preston Bench project. Supporting information in detail is presented in Appendix I attached hereto. This comparatively simple irrigation project has been planned to replace an old, privately constructed canal serving a highly developed irrigated area of about 4,000 acres near Preston, Idaho. The existing canal is now gravely threatened by landslides, and financial disaster for the farmers served by the canal may be expected unless a new canal is constructed within the near future. The Preston Bench project would consist of a new 15.6-mile canal in an entirely different location and on stable terrain, a 1,280-foot tunnel, and appurtenant structures. I urgently recommend that this report be given immediate departmental consideration with a view of securing Congressional authorization for very early construction of the project.

\* \* \* \* \*

## CONCLUSIONS

39. Construction of the Preston Bench project is urgently needed to avert the loss of a valuable water supply for an excellent farming area near Preston, Idaho, and to avoid financial disaster for the farmers. The Preston Bench project as outlined in this report offers the most practicable means of preserving the water supply in this area. The benefits obtainable from the project through preservation of the water supply, and agricultural production and wealth dependent thereon, are far greater than the estimated cost of the project. The project has engineering feasibility, and full repayment of the project cost is in prospect.

## RECOMMENDATIONS

40. As a result of high construction prices at present, the estimated construction cost of the Preston Bench project is

higher than desirable, and the period required for repayment of the project cost is unusually long. In view of the present precarious water supply situation for the Preston Bench lands, however, the irrigators and the Nation cannot afford to defer construction of the project until construction prices are more moderate. I therefore recommend:

(a) That the following principal works, and such subsidiary works as may be incidental thereto, which constitute the Preston Bench project, be authorized to be constructed by the Bureau of Reclamation substantially in accordance with the plan set forth in this report, with such modifications, omissions, or additions as the Commissioner of Reclamation, with the approval of the Secretary of the Interior, may find proper for carrying out the project to the end of providing a dependable water supply for irrigation of approximately 4,050 acres of land near Preston, Idaho, as indicated in this report, to wit:

- (1) Mink Creek canal
- (2) Station Creek tunnel
- (3) Such drainage works as may be required

(b) That said Preston Bench project be authorized to be constructed, operated, and maintained in accordance with the Federal Reclamation laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto, including legislation for authorization of said project).

(c) That the total cost of said Preston Bench project be allocated for repayment by the water users to be served by the project, with repayment to be made in accordance with terms and conditions specified by the Secretary of the Interior upon consideration of (1) the repayment ability of the water users as estimated in paragraph 36 of this report, (2) the present and prospective non-project obligations of the water users as outlined in paragraph 35 of this report, and (3) any future changes in construction prices that may affect the cost of the project.

(Signed) E. O. LARSON.

BUREAU OF RECLAMATION,  
*Washington, March 3, 1948.*

The SECRETARY OF THE INTERIOR.

SIR: Transmitted herewith is my report on the Preston Bench Project, Idaho.

In your behalf, copies of the report which you adopted on January 2, 1948, as your proposed report were submitted to the af-

fect States and to the Secretary of the Army for comment in accordance with the Act of December 22, 1944, (58 Stat. 887), and to the Idaho Department of Fish and Game in accordance with provisions of the Act of August 14, 1946 (60 Stat. 1080). The letters of comment received therefrom are attached as are those also from the Departments of Agriculture and Commerce and from the Federal Power Commission. No comments, views, or recommendations received are adverse to the project. The Governor of Idaho states that it appears to be of vital importance that early relief be afforded the Preston Bench area through construction of the project.

Under these circumstances, I recommend that you adopt the report which you approved on January 2, 1948, as your final report, and that you transmit it to the President and to the Congress in accordance with Reclamation Law.

Respectfully yours,

(Signed) KENNETH MARKWELL,  
*Acting Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, March 5, 1948.*

THE PRESIDENT,

*The White House,*

*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: My report on the Preston Bench Project, Idaho, is transmitted herewith to you pursuant to Section 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187). I propose the construction of a new canal and related works to replace an existing irrigation canal that is subject to periodic damage from landslides along the Bear River in the vicinity of Preston, Idaho.

The plan for the project has been prepared under the sponsorship of the Bureau of Reclamation, and the report has been reviewed by the States of Idaho, Utah, and Wyoming, and by the Secretary of the Army to whom it was sent in accordance with the requirements of Section 1 of the Act of December 22, 1944 (58 Stat. 887), and by the Departments of Commerce and Agriculture, and Federal Power Commission. None of their comments is adverse to the project. Governor Robins of Idaho states that it is vitally important that early relief be afforded the project area. The Idaho Department of Fish and Game also has reviewed the report in accordance with provisions of the Act of August 14,

1946 (60 Stat. 1080) and recommends favorable action. Copies of these letters of comment are transmitted herewith.

I shall appreciate having your advice concerning the relation of this proposed project to your program before I transmit the report to the Congress for its consideration and appropriate action in accordance with the provisions of the Reclamation Project Act of 1939. Because of the emergency nature of the proposed works, I would appreciate receiving an early reply.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

## PRESTON BENCH PROJECT AUTHORIZATION

An act to authorize the Secretary of the Interior to construct the Preston Bench project, Idaho, in accordance with the Federal reclamation laws. (Act June 15, 1948, 62 Stat. 442, Public Law 644, 80th Cong., 2d sess.)

\* \* \* That the Secretary of the Interior through the Bureau of Reclamation is hereby authorized to construct, maintain, and operate, pursuant to the Federal reclamation laws, the Preston Bench project, Idaho, substantially in accordance with the report of the regional director of the Bureau of Reclamation, region IV, dated September 15, 1947, as concurred in by the Commissioner of Reclamation and the Secretary of the Interior: *Provided*, That the total cost of the project shall be reimbursable under the Federal reclamation laws within repayment periods fixed by the Secretary of the Interior at not to exceed seventy-four years.

SEC. 2. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such sums as may be required for the purposes of this Act.

# PROVO RIVER PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, November 13, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*, 295 U. S. 174) indicated that Section 4 of the Act of June 25, 1910 (36 Stat., 835) is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Provo River project, Utah, is made to you under said statute of 1910 and under subsection B of Section 4 of the Act of December 5, 1924 (43 Stat., 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of November 16, 1933, an allotment of \$1,000,000 was made available under the Act of June 16, 1933, and under date of August 14, 1935, you approved an allotment of \$2,260,000 under the Emergency Relief Act of April 8, 1935, to start the construction of the Provo River project, consisting of two divisions, known respectively as the Deer Creek division and the Utah Lake Division.

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<sup>1</sup>The *Provo River Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

The water to be developed by the project will be used for the purpose of furnishing a supplemental supply for approximately 85,000 acres of irrigated land of which 35,000 acres are under the Deer Creek Division and 50,000 acres under the Utah Lake Division. The lands to be so furnished with a supplemental supply of water are located in the general vicinity of the Cities of Provo, Pleasant Grove, Lehi, American Fork, Magna and Salt Lake City. In addition to the water furnished for supplemental irrigation, about 50,000 acre feet annually will be furnished for municipal, industrial and miscellaneous purposes, including some irrigation, from the Deer Creek Division and about 30,000 acre feet annually from the Utah Lake Division. The furnishing of water for municipal, industrial and miscellaneous purposes is necessary in order to avoid the further encroachment, for these purposes, on the present irrigation supply for farm lands.

The furnishing of supplemental water for project lands and for municipal and industrial purposes from the Deer Creek Division will be accomplished by the construction of the following principal features:

- (a) The Deer Creek Reservoir on the Provo River, with an estimated total storage capacity of 170,000 acre feet, and an estimated annual yield of 100,000 acre feet of water;
- (b) The Duchesne Tunnel, with a length of approximately 5.54 miles and a capacity of approximately 325 second feet;
- (c) The enlargement of the Weber-Provo Diversion Canal constructed some years ago by the United States as part of the first division of the Salt Lake Basin project;
- (d) The enlargement of a privately owned canal known as the Provo Reservoir Canal for a distance of about 23 miles to a capacity of 400 to 600 second feet, or the enlargement and extension of another privately owned canal known as the Big Bench and North Union Canal in the event it is determined that this latter canal enlargement and extension is more desirable than the enlargement of the Provo Reservoir Canal;
- (e) Other works of lesser importance.

The furnishing of supplemental water for project lands and for municipal and industrial purposes from the Utah Lake Division will be accomplished by the construction of the following principal features:

- (a) A dike across the southern portion of Utah Lake about 5½ miles long, with a crest elevation of about 8 feet above what is known as compromise level of Utah Lake, together with a spillway and pumping plant;
- (b) The enlargement and revision of the channel of the Jordan River between Utah Lake and Jordan Narrows so that when enlarged and revised the channel will have a capacity of about 1800 second feet.
- (c) Other works of lesser importance.

Both divisions of the project cover old established communities and the development of additional water as contemplated by the project is badly needed.

Studies and investigations by the Bureau of Reclamation indicate that the water supply is adequate for the purpose intended, that the construction of both divisions is feasible from an engi-

neering standpoint and that the project can be completed at a cost of \$9,974,000.

I find that the project is feasible, that the lands to be furnished with a needed supplemental supply of water are adaptable for actual settlement and farm homes, and that the project will probably return the cost thereof to the United States. Under the present circumstances there is little likelihood of the development occasioning a rise in the price of the irrigated land accompanied by sales on time to newcomers, to the ultimate detriment of the project.

I recommend that the Provo River project, consisting of the Deer Creek Division and the Utah Lake Division, be approved, and that authority be issued to this Department to proceed with the work and to make contracts and take any necessary action for the construction of said project or either division thereof.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 16, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, October 21, 1938.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: This report upon the Salt Lake aqueduct, a part of the Provo River Project, Utah, now under construction, is made to you in pursuance of Section 4 of the Act of June 25, 1910 (36 Stat. 835), and under Subsection B of Section 4 of the Act of December 5, 1924 (43 Stat. 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, (43 Stat. 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information



in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of November 16, 1935, you approved the finding of feasibility for the Provo River Project, this finding being concerned primarily with the Deer Creek and Utah Lake Divisions, as sufficient information was not then available to include the aqueduct. The Deer Creek Division is now under construction with an estimated cost of \$7,600,000, and with the major features comprising the Deer Creek reservoir on the Provo River, a trans-mountain tunnel to bring Duchesne River waters to Provo River, a short canal to divert surplus Weber River waters to Provo River, and enlargement of the major distribution canal leading from Provo River northward through the irrigated lands. The Provo River Water Users' Association has contracted with the Government to repay the cost of the works above described. The 1935 finding of feasibility of the Provo River Project, Utah, reads in part, as follows:

In addition to the water furnished for supplemental irrigation, about 50,000 acre-feet annually will be furnished for municipal, industrial and miscellaneous purposes, including some irrigation, from the Deer Creek Division and about 30,000 acre-feet annually from the Utah Lake Division. The furnishing of water for municipal, industrial and miscellaneous purposes is necessary in order to avoid the further encroachment, for these purposes, upon the present irrigation supply for farm lands.

All of the engineering features mentioned in the preceding paragraph, excluding the enlargement of the Provo River canal, are closely associated with the water supply for the aqueduct.

The Metropolitan Water District of Salt Lake has been formed to underwrite the construction of the aqueduct to convey project waters from Deer Creek Reservoir to Salt Lake City, serving enroute same small towns, together with approximately 10,000 acres of suburban irrigable lands adjacent to Salt Lake City which are badly in need of additional water. The District has subscribed to 46 percent of the capital stock of the Provo River Water Users' Association, entitling the District to that part of the project water supply, and desires that the construction be promptly undertaken by the Bureau of Reclamation.

The Metropolitan Water District of Provo has subscribed to 8,000 shares in the Provo Water Users' Association and is in the same situation as the Metropolitan Water District of Salt Lake, in that it is organized so as to serve both the municipal water needs of Provo City and the irrigation needs of lands adjacent to the municipality. The first ten miles of the aqueduct feasibly can be designed and constructed to serve both the Provo and Salt Lake districts. If the Provo district desires so to be served, appropriate contract arrangements will be made.

The Metropolitan Water District of Salt Lake has a population of approximately 175,000 people, and includes properties with an

assessed valuation of approximately \$250,000,000. The Metropolitan Water District of Provo has a population of approximately 15,000 people with a proportionate assessed valuation.

The aqueduct will have an average capacity of 160 second-feet and a length of 41 miles from the Deer Creek Dam on Provo River to the present regulatory reservoirs in Salt Lake City. The construction cost thereof is estimated at \$5,800,000.

Studies and investigations by the Bureau of Reclamation indicate that the water supply to be secured is adequate for the purposes intended and that the construction of the aqueduct is feasible from an engineering standpoint.

I find that the Provo River Project, including the aqueduct, is feasible to construct, that the lands to be furnished with a needed supplemental supply of water are adapted for actual settlement, for intensive farming, and suburban homes, and that the project will return the cost thereof to the United States. I therefore recommend that authority be issued this Department to proceed with construction of the Salt Lake aqueduct as a part of the Provo River Project.

Sincerely yours,

(Signed) HARRY SLATTERY,  
*Acting Secretary of the Interior.*

Approved October 24, 1938.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

## DEER CREEK AND AQUEDUCT DIVISIONS

An act to provide a means for the orderly continuation and completion of the Deer Creek and aqueduct divisions of the Provo River project, Utah. (Act March 29, 1948, 62 Stat. 92, Public Law 462, 80th Cong., 2d sess.)

\* \* \* That, in order to provide a means for the orderly continuation and completion of the Deer Creek and aqueduct divisions of the Provo River project, Utah, and for the recovery by the United States of the actual construction cost thereof, the Secretary of the Interior in proceeding with the construction, completion, and administration of said divisions heretofore authorized, subject to the execution of such contracts as the Secretary may deem necessary to maintain existing repayment contracts between the United States, the Provo River Water Users Association and the Metropolitan Water District of Salt Lake City consistent with the interim construction cost recovery plan herein provided, is authorized (a) to deliver water or make project works available therefor, as the case may be, on terms and at annual rates or other annual charges to be fixed by the Secretary from year to year,

calculated to return to the United States (in addition to the cost of operation and maintenance) the actual cost in excess of existing repayment contract liability that may be incurred by the United States in completing said divisions of the Provo River project; and (b) to postpone the commencement of annual construction charge installments under existing repayment contracts: *Provided*, That any such postponement of annual construction charge installments shall in no event operate to delay the commencement of construction charges, as provided by existing repayment contracts, beyond the time when costs that may be incurred by the United States in excess of existing contract liability have been returned to the United States.

# RAPID VALLEY PROJECT

OFFICE OF THE SECRETARY,  
*Washington, October 2, 1939.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The Interior Department Appropriation Act, 1940, contained an item of \$5,000,000 from which allocation may be made by you:

For construction in addition to labor and materials to be supplied by the Works Progress Administration, of Water Conservation and Utilization projects, \* \* \* in the Great Plains and arid and semiarid areas of the United States, \* \* \*

All expenditures from the appropriation and as much of the expenditures from the Work Projects Administration fund as the President determines are to be considered reimbursable. Hereinafter the appropriation item will be termed the "1940 Water Conservation Appropriation."

The Rapid Valley project on the edge of the Black Hills in the western part of South Dakota is recommended for construction by the Northern Great Plains Committee, in its report to you which was released for publication in October, 1938. I concur in this recommendation and request that an allotment of \$980,000 be made from the appropriation item mentioned above to be considered as a reimbursable portion of the construction cost.

The lands of the project, comprising 12,000 acres, are located along Rapid Creek in Pennington County and extend downstream from Rapid City to Farmdale. The area has been irrigated for the past thirty years or more by eleven canals which divert water directly from Rapid Creek. In nearly all years the stream flow is inadequate after the passing of the spring floods and, as a consequence, it is only practicable to raise the native hay or other early maturing plants, although the soil and climate are adapted to the growing of a large variety of crops. A supplemental supply of irrigation water would provide protection from drought and permit more diversified farming, thus stabilizing the agricultural industry in this community.

State Highway No. 40 and a branch line of the Chicago, Milwaukee, St. Paul & Pacific Railroad pass through the project lands. Transportation facilities are generally good and Rapid City furnishes a market and distribution facilities. The area is well developed and improved. A considerable number of the holdings of irrigable lands are large and these should be subdivided into tracts containing not more than 160 acres of irrigable land.

Rapid City, an important commercial and recreational center of the Black Hills region, is in urgent need of an additional water supply for its present population of 12,000 people and to meet the rapidly increasing demand as the city expands both in area and in population.

Storage of water to meet the need of the agricultural lands and the city can be provided by the construction of an earth and rockfill dam 157 feet in maximum height and 1,100 feet in crest length, at the Pactola site on Rapid Creek, fifteen miles upstream from Rapid City. The reservoir formed by the dam would have a capacity of 40,000 acre-feet, 10,000 acre-feet of which would be reserved for municipal supply and the remainder allocated to the project lands. The reservoir would also provide considerable flood control if properly operated.

The estimated cost of the dam, reservoir, and appurtenant features, the only engineering works to be constructed under this program, is \$2,470,000, which includes \$350,000 for the relocation of a railroad line. Of the total amount, at least \$980,000 can be repaid by the municipality and the landowners, in accordance with the provisions of the Water Conservation Appropriation item, and should be obtained from the said appropriation. The remainder, or \$1,490,000, needed for construction, is expected to be secured from the Work Projects Administration. Most or all of this latter amount cannot be repaid without undue burden. The estimate of expenditures from Work Projects Administration funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to the fiscal year 1940. The efficiency with which the work can be conducted under the new Work Projects Administration Act is unknown. Therefore, the estimate of required Work Projects Administration funds may need revision at some later date. A subsidy for the flood control benefits is not recommended, as the subsidy provided by the Work Projects Administration funds would appear to be ample recognition by the Federal Government of its generally accepted flood control obligations. A tabulation, giving an estimated breakdown of expenditures, is attached.

Repayments of construction charges are planned to be obtained through contracts with Rapid City and with an association of the various ditch companies. It is proposed that the city shall be obligated to pay one-half of the reimbursable costs, not exceeding \$500,000. City officials have indicated their willingness to pay up to this amount for a supply of dependable water. The unsatisfactory situation in South Dakota with respect to irrigation rights and a lack of adjudication on Rapid Creek make it

desirable that the sale of the agricultural water be to an association of the various ditch organizations to the end that the natural flow and stored waters will be properly delivered in accordance with the water rights as established by various water suits in the nature of partial adjudications. To be effective, the association must include all or substantially all of the diverters in Rapid Creek Valley. The cost of irrigation water is planned to be established at one dollar per acre-foot per annum, with a minimum annual payment by the association sufficient to meet the provisions for reimbursability contained in the Water Conservation Appropriation item.

The operation of the reservoir should be conducted by a representative of the Federal Government in order that its operation will result in flood control to the largest practicable degree and in order to avoid friction, so far as possible between the city and the agricultural interests. The cost of such operation should be charged to the users of the water in proportion to the water turned out to them.

A large part of the area has been cultivated and needs little further development. However, there are some parts where rough land leveling is desirable. It will be necessary to dig additional farm ditches to obtain the most efficient use of the limited water supply and on account of the subdivision of large land holdings.

In accordance with the plan outlined by the Northern Great Plains Committee of the National Resources Planning Board, the Bureau of Reclamation should construct Pactola Dam, reservoir, and appurtenant works, negotiate contracts for the sale of water from the reservoir, and operate and maintain these works; the Department of Agriculture should conduct the rough land leveling, the digging of farm ditches, and arrange for settlement and operation and maintenance of the irrigation features on the project and for repayment to the Government of the charges for land development and resettlement. The Department of Agriculture has indicated that it plans to acquire the excess lands with funds already available, subdivide the lands into plots of not more than 160 acres each, and to settle a part of the lands thus acquired and subdivided with farmers from drought stricken areas. The National Resources Planning Board should assist in coordinating the activities of the Bureau of Reclamation and of the Department of Agriculture.

Summing up the recommendations and suggestions contained herein, I recommend:

- (1) That the Bureau of Reclamation construct, operate, and maintain the Pactola Dam, reservoir, and appurtenant works, and negotiate contracts for the sale of water; that the Department of Agriculture conduct the land development program and arrange for settlement, operation, and maintenance of irrigation features on the project lands and for repayment for the land development and resettlement features; and that the National Resources Planning Board assist in the planning and coordinating field.

- (2) That an allotment of \$980,000 be made from the 1940 Water Conservation Appropriation to assist in the construction of the project;

- (3) That the Work Projects Administration be requested to give prompt consideration to applications which will be presented by the Bureau of Recla-

mation to obtain \$1,490,000, the remaining funds needed for construction;

(4) And that construction not be initiated until negotiations with the municipality, with the agriculturists, and with the railroad have proceeded to the point where assurance can be given by the Commissioner of the Bureau of Reclamation that the funds allotted from the 1940 Water Conservation Appropriation can be repaid in accordance with the provisions of that item.

The Department of Agriculture and the National Resources Planning Board would be reimbursed for all services connected with the construction of the project by transfers or advances from the funds made available to the Department of the Interior, Bureau of Reclamation, for construction of the project. Letters containing the comments of the Department of Agriculture and the Work Projects Administration are enclosed.

The time required for the construction of the project will depend largely on the availability of relief labor and may extend two, three, or four years.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 8, 1939.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, October 21, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: Recently you rescinded \$900,000 of the \$980,000 which you had previously allotted under the Act of May 10, 1939 (43 Stat. 685), to the Rapid Valley project in South Dakota, in order that a part of the amount rescinded could be allocated to the Eden project in Wyoming. This had been done for the reason that construction of the Rapid Valley project had been delayed by various negotiations, and it was desirable to commence construction of the Eden project with the least possible delay.

Negotiations on the Rapid Valley project have taken a favorable turn, and it is now believed that actual construction can be undertaken in the near future. The project is suitable for construction under the provisions of the Act of August 11, 1939 (53 Stat. 1418), as amended, and it is planned, with your approval, to proceed with construction under the terms of this act and with

funds made available for this purpose in the 1941 Interior Department Appropriation Act. Therefore, I am submitting this report on the project in accordance with the requirements of the Act of August 11, 1939, as amended, and I request your approval of the findings and certifications contained herein.

### PROJECT PLAN

The proposed work involves the construction of a reservoir of 40,000 acre-feet capacity at the Pactola site on Rapid Creek to supplement the water supply for 12,000 acres of land and to provide a municipal water supply for Rapid City. The principal engineering feature will be an earth and rockfill dam 157 feet in maximum height and 1,100 feet in crest length, located 15 miles upstream from Rapid City. The water distribution system for the project has already been constructed, but it is planned to provide certain drainage works in the present program.

The lands to be irrigated are located along Rapid Creek in Pennington County and extend downstream from Rapid City to Farmdale. The area has been irrigated for the past 30 years or more by 11 canals which divert water directly from Rapid Creek. In nearly all years the stream flow is inadequate after the passing of the spring floods, and as a consequence, it is only practicable to raise native hay or other early maturing plants, although the soil and climate are adapted to the growing of a large variety of crops. A supplemental supply of irrigation water would provide protection from drought and permit more diversified farming, thus stabilizing the agricultural industry in this community. Rapid City, an important commercial and recreational center of the Black Hills region is in urgent need of an additional water supply for its present population of 12,000 people and for the increase in demand as the city grows in population. Storage in the reservoir of 10,000 acre-feet of water will be reserved for municipal supply.

### PARTICIPATION OF FEDERAL AGENCIES

Construction of the Pactola dam, reservoir and appurtenant works and the drainage system is expected to be accomplished by the Department of the Interior through the Bureau of Reclamation. The present plan, subject to change, is that the Bureau of Reclamation also will operate the dam after it is built and negotiate contracts with the water users for the repayment of construction charges.

A large part of the project area has been cultivated, but further development will be needed in order to conform to the new farm practices made possible by a dependable water supply. Land will need to be leveled in some sections. It will be necessary to dig additional farm ditches on account of the subdivision of large land holdings and in order to obtain the most efficient use of the water supply. This work is expected to be done by the Department of Agriculture, which is also expected to arrange for settlement and



operation and maintenance of the distribution and drainage works on the project, and for repayment to the Government of the charges for land development and resettlement. The Department of Agriculture has indicated that it plans to acquire the excess lands with funds already available, to divide the lands into units of economic size, and to settle a part of the lands with farmers from drought-stricken areas. The proposed participation of the Department of Agriculture is discussed in a letter to me dated September 19, 1940, and that Department has advised that this letter a copy of which is enclosed, may be used as its report to you. Until appropriations are made to the Department of Agriculture for its participation, it is planned that allocations from appropriations made under the authority of the Act of August 11, 1939 (53 Stat. 1418), will be made to the Bureau of Reclamation and that the Department of Agriculture will be reimbursed for services by the Bureau of Reclamation through transfers or advancement of funds from the allocations.

The Work Projects Administration and the Civilian Conservation Corps will expect to provide most of the labor and a small amount of materials, supplies and equipment. A report to you from the Work Projects Administration on the extent of its proposed participation is enclosed.

#### ESTIMATED COST

The total estimated cost of the dam, reservoir and appurtenant features, drainage and land development program is \$2,910,000, of which \$80,000 have already been allotted by you from the Interior Department Appropriation Act of 1940, \$1,150,000 are expected to be obtained from appropriations made and to be made under the authority of the Act of August 11, 1939, and the amendments thereto, the expenditures therefrom to be within the limitations provided in Sections 1 and 9 of the Act, as amended, and \$1,680,000, through work accomplished by the Work Projects Administration or the Civilian Conservation Corps or both. The construction of works by the Bureau of Reclamation will require \$2,740,000, and the work to be done by the Department of Agriculture, \$170,000. Out of the \$3,500,000 made available by the Interior Department Appropriation Act of 1941, it is estimated that \$300,000 will be needed for work to be accomplished in the fiscal year 1941.

A tabulation giving the estimated breakdown of expenditures is attached. This shows the total estimated expenditures and the proportionate part of these expenditures expected to be made through the use of (1) the unrescinded remainder (\$80,000) of the allocation made under the Act of May 10, 1939, and (2) the funds expected to be obtained from appropriations made to carry out the provisions of the Act of August 11, 1939, and the amendments thereto, (\$1,150,000). The estimated construction cost has been increased over that previously given on account of the addition of drainage, the rise in commodity prices, and the higher appraisal of the rights of way over that contained in the engineer's report of November 1937, when the first estimate was

made. The estimate of expenditures from Work Projects Administration funds is based on the experience of the Bureau of Reclamation on construction with relief forces under the legislative provisions in effect prior to the fiscal year 1940. The efficiency with which the work can be conducted under more recent regulations is unknown. Therefore, the estimate of required Work Projects Administration funds may need revision at a later date.

If forces from the Civilian Conservation Corps are used, the amount to be expended for the work by the Work Projects Administration and the Civilian Conservation Corps is estimated to be equal to that shown for expenditure by the Work Projects Administration in the tabulation. However, the breakdown under the various features would probably not be the same due to the differences in administrative procedures of the two agencies and the legislation which applies to them.

The estimated cost of the reservoir includes \$350,000 for the relocation of a railroad. Of this amount approximately \$175,000 are expected to be obtained from reimbursable appropriations and used to compensate the present owners for abandonment of the railroad or to furnish the labor and supplies required to supplement the contributions from the Work Projects Administration or the Civilian Conservation Corps in the relocation of the railroad. Negotiations for the abandonment or relocation of the railroad will be conducted with the expectation of keeping the expenditure of reimbursable funds within this estimate.

### ALLOCATION OF COSTS

The total estimated cost of the proposed construction can be properly allocated to irrigation and to municipal water supply. The reservoir will provide some flood control. There are no opportunities for profitable power development and no Indian lands are involved. It is believed that the water users can repay in 40 annual instalments, following a short development period, \$600,000 toward the construction of the dam, reservoir and appurtenant works and the drainage system. It is also believed that \$500,000 of the cost of constructing the dam, reservoir and appurtenant works will be returned to the United States in revenues from the sale of municipal water supply. Subsidy for flood control benefits is not recommended as the subsidy provided through the work accomplished by the Work Projects Administration and the Civilian Conservation Corps would appear to be ample recognition by the Federal Government of its generally accepted flood control obligations. The expenditures by the Department of Agriculture, estimated at \$130,000 from funds appropriated under the Act of August 11, 1939, and the amendments thereto, would be repaid in accordance with section 5 of the act as amended.

### EXCESS LAND HOLDINGS

The breaking up of large private holdings of irrigable land on the proposed project is, in my opinion, highly desirable for the

successful operation of the project. This can be accomplished by the Government obtaining control of large holdings of irrigable land through the Department of Agriculture and by the making of agreements with the owners of irrigable lands for the disposal of holdings in excess of the farm units which are to be established for the project. Such arrangements should, in my opinion, be made before the commencement of actual construction of the major physical features of the project.

### FINDINGS, CERTIFICATIONS AND RECOMMENDATIONS

Based on the foregoing report and other data available to me concerning the proposed project, I make the following findings and certifications:

(1) I find and certify that the proposed project has engineering feasibility;

(2) I find that the estimated cost of the proposed construction is \$2,740,000, exclusive of the cost of participation by the Department of Agriculture, which is estimated at \$170,000;

(3) I find that of the estimated cost of the project \$2,240,000 are properly allocated to irrigation; \$500,000 are properly allocated to the municipal water supply; and that no part of the costs should properly be allocated to power, irrigation of Indian trust and tribal lands or to flood control;

(4) I find and certify that the water users probably can repay in 40 annual instalments construction costs in the amount of \$600,000, in addition to the \$130,000 out of the amount to be expended on land development which are to be repaid as provided in section 5 of the Act of August 11, 1939, as amended;

(5) I find that the estimated costs allocated to the municipal water supply will probably be returned by revenues from the furnishing of water for municipal purposes.

I recommend that you approve the foregoing report and findings and that you find, by your approval of this report, that services, labor, materials, easements and other property, including moneys for the construction of the project, should be made available to the Department of the Interior by the Work Projects Administration, the Civilian Conservation Corps, or other Federal agencies in the amount found necessary by me to make up the difference between the estimated cost of the project construction and the amount which has been allocated from the Interior Department Appropriation Act of 1940 and will be allocated from appropriations made under the provisions of the Act of August 11, 1939, and amendments thereto, subject, however, to the condition that construction of the major physical features of the project shall not be commenced, until arrangements satisfactory to me have been made for the disposal of lands in the project held in one ownership, in excess of the size of a farm unit as determined by me pursuant to the Act of August 11, 1939, as amended.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
Approved October 25, 1940.

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY.  
*Washington, February 20, 1942.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: On October 25, 1940, you approved the Rapid Valley irrigation project in South Dakota for construction under the terms of the Act of August 11, 1939 (53 Stat. 1418), as amended. An allotment of reimbursable funds totaling \$1,230,000 was also approved by you at that time.

The purpose of this letter is to advise you of a change in the engineering plans. The principal engineering feature of the project as discussed in the previous letter was the Pactola dam and reservoir. A railroad traversed the entire length of the reservoir, and in the report to you the following statement was made:

The estimated cost of the reservoir includes \$350,000 for the relocation of a railroad. Of this amount approximately \$175,000 are expected to be obtained from reimbursable appropriations and used to compensate the present owners for abandonment of the railroad or to furnish the labor and supplies required to supplement the contributions from the Work Projects Administration or the Civilian Conservation Corps in the relocation of the railroad. Negotiations for the abandonment or relocation of the railroad will be conducted with the expectation of keeping the expenditure of reimbursable funds within this estimate.

After many months of negotiation for the abandonment or relocation of the railroad it was found that shippers objected to abandonment and that the cost of relocating the railroad outside of the reservoir would be in excess of the amount mentioned in the previous paragraph. In view of this situation it was found necessary to turn to an alternative plan for storage through the construction of a dam at the Deerfield site and one or more smaller dams to provide storage equivalent to that which would have been made available by the Pactola reservoir. Consideration also is being given to the lining of a portion of Rapid Creek to prevent seepage losses. Under this revised plan, the City is to be given a prior storage right of 7,000 acre-feet in the Deerfield reservoir. Until the City's uses develop further, it is expected that part of this right will be available for irrigation use. There will also be available for irrigation a secondary 8,000 acre-foot right in Deerfield, and all storage available in the smaller reservoirs. It is estimated that these changes will not increase the cost of the project beyond that stated in the letter which you approved on October 25, 1940.

The site of the Deerfield dam is about 20 miles above the Pactola site and is on Castle Creek, a tributary of Rapid Creek. The dam will be an earth-fill structure and as now contemplated will be approximately 100 feet in height and 800 feet long across the crest. The storage capacity of the reservoir is expected to be 15,000 acre-feet. The construction of the dam and reservoir is estimated to require \$500,000 of the funds appropriated under

the Act of August 11, 1939, and drainage features on the project lands are estimated to require an additional \$100,000 of these special funds. Of the remaining \$630,000 previously approved for allotment, it is planned to use \$500,000 for one or more smaller dams on Rapid Creek or its tributaries, and for the lining of a section of Rapid Creek if this is found by studies now in progress to be desirable. In addition to these allotments for construction, the sum of \$130,000 has received your prior approval for allotment to the Department of Agriculture for work to be done by that Department. With the exception of the change in engineering plans discussed herein, the description of the project, the provisions for carrying out the work, and the findings, certifications, and recommendations are the same as those discussed in my letter to you of October 21, 1940, which you approved on October 25, 1940. A copy of my previous letter is attached.

A complete construction organization has been established on the project for more than a year, and practically all preliminaries leading to actual construction have been accomplished. Equipment ranging from dragline excavators, tractors, and dump trucks, to concrete mixers, air compressors, and machine shop tools, has been purchased, as well as materials and supplies including lumber and reinforcing steel. The rights of way for the engineering features have been appraised, and purchase contracts are being negotiated. A CCC camp at the dam site has already been occupied.

The Department of Agriculture and the Work Projects Administration have been informed of the proposed changes in plans, and both have furnished comments and recommendations in letters to you which are attached. I concur in the recommendations of these organizations and recommend that you approve the proposed change in the engineering plans which has been made necessary through unexpected local developments subsequent to your approval of October 25, 1940.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved in accordance with my letter of June 5, 1942.

(Signed) FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,  
Washington, June 5, 1942.

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 20, 1942 you submitted for approval your revised plans for the construction of the Rapid

Valley irrigation project of South Dakota, under the terms of the Act of August 11, 1939, as amended.

This project is approved with the stipulation that immediate construction shall be confined to the construction of the dam at the Deerfield site and appurtenant works essential for augmenting the municipal water supply of Rapid City, South Dakota, and providing additional water for supplemental irrigation for the Rapid Valley Irrigation District.

The construction of the minor dams and the completion of the project will be postponed as not now essential to the war effort, and held in reserve as a part of the post-war projects to help absorb labor subsequently released by war industry.

It is noted that a construction organization has been established and that the necessary construction equipment and tools, as well as material and supplies including lumber and reinforcing steel, have been purchased.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

OFFICE OF THE SECRETARY,  
*Washington, October 5, 1943.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The papers which are enclosed contain a brief description of the Rapid Valley irrigation project in South Dakota which you approved for construction on June 5, 1942, and a recommendation that construction be continued on the Deerfield unit of the project. In December 1942, construction of this unit was limited by an order issued by the War Production Board.

The project is located near Rapid City, South Dakota. The proposed work would involve completing the construction of a reservoir of 15,000 acre-feet capacity to supplement the water supply for 12,000 acres of land and to provide a municipal supply for Rapid City. The principal engineering feature would be an earth and rockfill dam. The project lands are under cultivation and under ditch, but because of the lack of late season water they cannot be intensively farmed. Completion of the dam would, in addition to furnishing an adequate irrigation supply, furnish the City with sufficient water to meet abnormal demands imposed by activities associated with the war.

Based upon consultations with the War Food Administrator and

information available to me concerning the project, I find that the proposed construction is justifiable as an aid in the production of needed agricultural products, and recommend that you approve the continuation of the construction of the Deerfield unit.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

OFFICE OF THE SECRETARY,  
*Washington, October 5, 1943.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: There is presented herein for your approval a proposal to complete and to bring into operation the Deerfield Unit of the Rapid Valley irrigation project in Pennington County, South Dakota, under the provisions of the Act of October 14, 1940 (54 Stat. 1119), as amended by the Act of July 16, 1943 (Public Law 152—78th Congress). The construction of this project would provide a supplemental water supply for 12,000 acres of irrigated land and a municipal water supply for Rapid City. On October 25, 1940, you approved a plan which I submitted to you proposing that the Rapid Valley project be constructed under authority of the Act of August 11, 1939 (53 Stat. 1418), as amended. Our inability to obtain the required right of way, however, made it necessary to revise the project plans, and on June 5, 1942, you approved beginning construction in accordance with the revised plans, with the stipulation, however, "that immediate construction shall be confined to the construction of the dam at the Deerfield site and appurtenant works essential for augmenting the municipal water supply for Rapid City, South Dakota, and providing additional water for supplemental irrigation for the Rapid Valley Irrigation District." Copies of papers relating to the above approvals are enclosed.

#### STATUS OF CONSTRUCTION

The major construction features of the project would be an earth and rockfill dam. All preconstruction work, such as the installation of a CCC camp and a Bureau camp, a water supply system, an access and construction road, and other incidental requirements, has been completed. In September 1942 the Selective

Service System assigned conscientious objectors under the jurisdiction of the Civilian Public Service to take the place of CCC enrollees, the latter camp having been discontinued in July 1942. All equipment and most of the other critical materials for the construction of the dam and outlet conduit are on hand. Stripping of the dam foundation and excavation of the cutoff trench and outlet conduit have been completed. Embankment of the main portion of the dam is now under way. Critical materials yet required amount to 44 tons of steel, wire, rope, nails, bolts, repair parts for construction equipment, and similar items. Arrangements are being made to build up the strength of the Civilian Public Service camp assigned to the project to 200 men. About 90 men are now available.

Since December 1942 work has been carried on under an order of the War Production Board limiting construction to that necessary to provide employment for persons under the jurisdiction of the Civilian Public Service. On August 26, the War Production Board extended the project rating of A-1-j to June 30, 1944.

#### ESTIMATED COST AND FINANCING PROCEDURE

When you approved this project on October 25, 1940, it was estimated that the total construction cost would be \$2,740,000. It was expected that the Work Projects Administration would contribute \$1,640,000 of that amount in the form of labor and some materials, and that the interests benefited would repay \$1,100,000. Contracts now being negotiated with the irrigators and Rapid City would require the former to repay \$600,000 and the latter \$500,000. The Work Projects Administration contributed about \$13,000 before being liquidated, about half of which was used in connection with the Pactola Dam site which was abandoned because of right of way difficulties. The Civilian Conservation Corps later participated by furnishing approximately \$12,000 in the form of labor and materials, but it too was liquidated. Labor is now being furnished by the Selective Service System through a Civilian Public Service Camp. It is expected that this agency may participate to the extent of \$200,000 exclusive of War Department costs. The present financial arrangements proposed for the completion of the Deerfield Unit are as follows:

Total estimated cost.....		\$1,118,000
Allotted .....	\$500,000	
Available for allotment.....	0	
Contributed by Work Projects Administration....	6,000	
Contributed by Civilian Conservation Corps.....	12,000	
Anticipated Civilian Public Service participation..	200,000	718,000
Estimated balance required in lieu of anticipated contributions....		400,000
Over allotment for equipment and building which would be credited upon completion of the project.....		50,000
Estimate of funds required.....		450,000

If you approve the continuation of construction of the Deerfield



Unit, it is proposed to allot \$450,000 from the appropriation for Water Conservation and Utility projects in lieu of the contributions of the Work Projects Administration and the Civilian Conservation Corps, and to continue construction in accordance with Section 5 of the Act of July 16, 1943. Sufficient funds for this purpose have been appropriated and are now available for allotment.

#### CONSULTATION WITH THE WAR FOOD ADMINISTRATOR

On March 2, 1943, I transmitted to the Secretary of Agriculture, for his consideration, an optimum 5-year program covering the production of certain critical war foods in which the bureaus of the Department of the Interior have special administrative responsibilities. The Rapid Valley project was among the irrigation projects recommended for consideration. On May 5, 1943, the War Food Administrator transmitted a list of ten projects, including Rapid Valley, to the Chairman of the War Production Board, and recommended that they receive careful consideration from the standpoint of adding to our production capacity for essential war and post-war foods.

#### FINDINGS AND RECOMMENDATIONS

In the findings approved October 25, 1940, the reimbursable construction costs, to be repaid by the irrigators, were fixed at \$600,000 under the provisions of Section 3 (b) (iv) of the Act of October 14, 1940. A total of \$500,000 was allocated to the municipal water supply, under the provisions of Section 3 (b) (v) of that Act. Within the limits of the authority of the Act of July 16, 1943, I shall make adjustments of the project's construction cost to the extent necessary to keep the construction costs required to be repaid in conformity with those findings.

I have consulted with the War Food Administrator, acting in the stead of the Secretary of Agriculture, concerning the justification of this project. Based on these consultations and on the information available to me concerning the project, I find that the proposed construction is justifiable as an aid to the production of needed agricultural products. I recommend that you approve this report and finding.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved November 22, 1943.

(Signed) FRANKLIN D. ROOSEVELT.

# RATHDRUM PRAIRIE PROJECT

OFFICE OF THE SECRETARY,  
*Washington, December 24, 1943.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Post Falls unit of the Rathdrum Prairie project involving the irrigation of approximately 3,527 acres of land in Kootenai County, Idaho, and pursuant to the authority of the Act of August 11, 1939 (53 Stat. 1418), as amended, (herein called the Act), I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

## PROJECT PURPOSE

The primary purpose of the proposed project would be to provide a supplemental water supply for 3,527 acres of land which is partly dry farmed and partly inadequately irrigated. The lands proposed for development lie about four miles northwest of the town of Coeur d'alene, Idaho, within a potentially rich farming area of 40,000 acres which, it is expected, ultimately will be proposed for development as the Rathdrum Prairie project. The immediate construction of the project would provide a means of increasing the production of agricultural products now vitally needed. After the war it is believed that the project would contribute toward the solution of problems arising out of interstate movements of agricultural populations by providing new homes and opportunities for a few additional farm families.

## THE PLAN

A new pumping plan would be constructed on the Spokane River about four miles west of Coeur d'alene. Water would be pumped northerly from this point through discharge pipes into a main canal which would lead the water to laterals through

which it would be carried to the project lands. A distribution system consisting of earth laterals with turnouts would be constructed to replace an existing pressure pipe system which has decayed beyond repair.

If approved, construction would not be undertaken unless there appeared to be a reasonable assurance that a satisfactory agreement for the purchase of pumping power could be obtained, and if construction should be started it would be stopped if, after a reasonable length of time, such an agreement were not in fact executed.

Structures contemplated for the development would consist of a pumping plant, a transmission line, a substation, discharge pipes, a main canal and lateral system, and the usual turnouts, wasteways, small bridges, and similar features. An adequate water supply for the lands to be benefited by the project works is believed to be available. Changes in these general plans may be found necessary, but it is expected that any changes will be of minor nature and will neither alter the general objectives of the project nor result in material departures from the present findings, predicated on the present plans for the project.

#### PARTICIPATION OF FEDERAL AGENCIES

The Bureau of Reclamation would construct the pumping plant, discharge pipes, transmission line, substation, canal system, and other necessary and appurtenant structures, and, subject to change, also would operate the system after it is built. The Bureau would negotiate contracts with the water users for the repayment of the reimbursable construction charges.

The War Food Administrator, acting in the stead of the Secretary of Agriculture, has transmitted a letter which is enclosed, indicating his approval of the project and the extent of the proposed participation by the Department of Agriculture. From this letter it will be noted that the War Food Administrator concurs in my belief that the construction would be justifiable as an aid in the production of needed agricultural products.

Services, labor, materials, supplies, equipment, and similar items which may become available through the Selective Service System, Prisoner of War Camps, or other Federal agencies may be utilized under the terms and conditions fixed by such agencies, if, in my opinion, such use would effectively expedite construction of the project.

#### PARTICIPATION OF NON-FEDERAL AGENCIES

Most of the lands to be benefited by the project lie within the boundaries of the Post Falls Irrigation District. It is expected that those outside the District would be included therein, and that a contract would be made with that or a similar organization embracing the lands in question for the repayment of that part of the construction costs which is determined to be reimbursable.

The water users benefited by the work of the Department of Agriculture would be required to repay the reimbursable money expended in that work in accordance with the Act. Aid which may be offered by the local interests probably would be accepted.

### ESTIMATED COST AND FINANCING PROCEDURE

The total cost of the project which would be undertaken by this Department would be \$300,000. In connection with the project, the Department of Agriculture would undertake activities pursuant to Section 5 of the Act which are estimated to cost \$149,000. The activities of both Departments would be financed with monies heretofore appropriated for Water Conservation and Utilization projects. The total expenditure is estimated to be \$449,000.

It is estimated that the water users can repay \$190,000 of the investment in the works proposed to be built by the Bureau of Reclamation. All net project costs in excess of this amount would, as authorized by the Act, be excluded from the project construction cost and be treated as non-reimbursable.

It is estimated that the water users can repay \$80,000 of the costs of the work performed by the Department of Agriculture. All costs in excess of this amount would, as authorized by the Act, be treated as non-reimbursable.

Sufficient funds for these purposes have been appropriated and are now available for allotment.

### SIZE OF FARM UNITS

Since the exact size may vary over the project area in accordance with the varying conditions of the project lands, limitations on the various holdings will be established after more complete and final surveys have been made. It now appears that ultimately the proper size holding would be between 80 and 160 acres of irrigable land. In this connection, considering the problems attendant on farm operation during the war and the need for the greatest possible production of agricultural products with the available farm labor supply, I expect to determine that for the duration of the war the limitations on the delivery of water will not be applicable to existing land holdings which exceed in area the maximum to be established for any farm unit.

### FINDINGS, CERTIFICATIONS, RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

1. The proposed project has engineering feasibility.
2. The total estimated cost would be \$300,000.
3. The estimated cost which properly could be allocated to irrigation is \$300,000.

4. The water users probably could repay \$190,000 in accordance with the requirements of Section 4 of the Act.

5. No part of the estimated costs properly could be allocated to municipal or miscellaneous water supply or power.

6. No part of the estimated cost properly could be allocated to the irrigation of Indian trust and tribal lands.

7. No part of the estimated costs properly could be allocated to flood control.

8. The proposed construction is justifiable as an aid in the production of needed agricultural products.

9. Construction would not be started without a reasonable assurance that a satisfactory agreement would be executed for the purchase of pumping power, and if construction should be started it would not be continued if such an agreement could not be executed within a reasonable time.

If you approve the project, it is planned to proceed immediately with matters relating to land acquisition, water rights, and repayment contracts so that the requirements of the statutes may be met as promptly as possible. The project has heretofore been submitted to the War Production Board for clearance for commencement of construction and procurement of materials needed for construction.

On the basis of the foregoing report and findings, I recommend that you approve this project for construction.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved January 29, 1944.

(Signed) FRANKLIN D. ROOSEVELT.

THE SECRETARY OF THE INTERIOR,  
*Washington 25, D. C., January 18, 1945.*

THE PRESIDENT,

THE WHITE HOUSE,

*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The enclosed letters, dated December 8, 1944, from Mr. Wilson Cowen, Assistant War Food Administrator, contain a recommendation and a request for authorization to expend funds for the acquisition of certain lands on the Post Falls unit of the Rathdrum Prairie irrigation project in Kootenai County, Idaho.

This project was approved for construction by you on January

29, 1944, under the terms of the act of August 11, 1939 (53 Stat. 1418), as amended. Your approval provided for the development of a supplemental water supply for 3,527 acres of land. The irrigation features were to be constructed by this Department, and the Department of Agriculture was to undertake certain developmental activities including "the acquisition of excess holdings of land where necessary to adjust the operating unit pattern to assure production under irrigation." At the time of your approval, the estimated cost of construction by the Department of the Interior was \$300,000 of which, it was estimated, the water users could repay \$190,000. The estimated cost of the work to be performed by the Department of Agriculture was \$149,000 of which, it was estimated, the water users could repay \$80,000. Copies of papers relating to the authorization of this project are enclosed.

Since you approved this project for construction, both Departments have negotiated with local interests relating to the many items which must be settled prior to the beginning of construction. I am satisfied that the water rights and rights of way necessary for construction and operation of the project either have been acquired or can be acquired with adequate titles and at satisfactory prices. Accordingly, I have made such findings in this regard as are required by the statute. Invitations for bids have been issued, and it is expected that a contractor will begin work on the irrigation features early this spring. I have been informed that the Department of Agriculture likewise has made good progress in settling preconstruction difficulties, and that considerable acreage has been acquired in connection with the program of that Department.

The Assistant War Food Administrator indicates that it has been found necessary to acquire certain additional lands within the project area. For this purpose, he requests an additional allotment of \$30,000 from funds under the control of the Department of Agriculture. It is noted that Mr. Cowen has determined that the water users can reasonably be expected to repay all of this amount in addition to the \$80,000 previously determined as the reimbursable costs of the work to be performed by the Department of Agriculture.

Following consultation with the War Food Administrator, acting in the stead of the Secretary of Agriculture, I find that the proposed construction is justifiable as an aid in the production of needed agricultural products. Accordingly, I transmit the recommendations of the Assistant War Food Administrator and recommend that you approve this report. 1

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved February 24, 1945.

(Signed) FRANKLIN D. ROOSEVELT.

BUREAU OF RECLAMATION, REGION I,  
*Boise, Idaho, October, 1946.*

To: The Commissioner, Bureau of Reclamation  
From: Regional Director, Region I, Boise, Idaho  
Subject: Plan for Development of Hayden Lake Unit, Rathdrum  
Prairie Project, Idaho.

TRANSMITTAL

1. Transmitted herein is my report, together with appended substantiating material, describing the contemplated development of the Hayden Lake Unit of the Rathdrum Prairie Project, Idaho. Development in accordance with the plan described here is essential to preserve improvement values and increase crop production on approximately 1,000 acres of irrigated land served by the deteriorated system of the established Hayden Lake Irrigation District. I recommend that you present the report for appropriate departmental action for the purpose of securing immediate authorization by the Congress to construct the Hayden Lake Unit of the Rathdrum Prairie Project.

2. This letter summarizes the more detailed appended report and makes specific recommendations leading to the construction of the project. Developments subsequent to the preparation of the appended report make it desirable to modify certain features of that report. The major points herein revised are:

(a) The estimates of construction costs have been revised from \$79,000 to \$90,650 to reflect 1946 costs.

(b) The potential project area has been increased to 1,050 acres. The Hayden Lake Irrigation District has been petitioned by land owners within the district to place approximately 65 acres (62.5) of additional land on its assessment rolls. Inasmuch as the construction of the proposed pipeline to rehabilitate the present system has the capacity to serve this larger acreage, the project area is here considered to contain 1,050 acres of irrigable land in place of 987.5 acres as found in the appended report.

(c) The estimates of operation and maintenance costs and of benefits have been revised to apply to the larger project area.

(d) The indicated ability of water users to pay for water costs during each of the next 40 years has been increased from \$5.65 to \$5.75 for reasons noted later in my report.

(e) Complete repayment of construction costs on the basis of 1946 prices is indicated. Landowners within the District appear to have accumulations of cash made during the current period of high income. The District has indicated its willingness to make a levy against its members in order to provide for a cash payment on construction, prior to completion of the project, in an amount equal to the difference between the estimated construction costs

and the estimated repayment ability of the water users during the 40-year repayment period.

#### AUTHORITY FOR THE REPORT

3. This report is authorized to be made by virtue of the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto).

#### COOPERATION AND ACKNOWLEDGMENTS

4. The investigations on which this report is based were undertaken at the request of officials and residents of the Hayden Lake Irrigation District. Among the several individuals and agencies assisting the Bureau of Reclamation in the investigations, special acknowledgment is made to contributions of:

Hayden Lake Irrigation District  
United States Department of Agriculture  
United States Employment Service  
Coeur d'Alene Chamber of Commerce  
Geological Survey, United States Department of the Interior  
Kootenai County, Idaho  
Treasurer  
Tax Assessor  
Agricultural Agent

#### DESCRIPTION OF AREA

5. The Hayden Lake Unit (also referred to subsequently as the project or project area) shown on the Map No. 227-D-99 embraces approximately 1,050 acres of the total area of 37,000 acres included within the contemplated Rathdrum Prairie Project, Idaho, which is shown on the accompanying map. One unit of the larger project, the Post Falls Unit, of 3,500 acres, already has been constructed. Development of the remaining 32,500 acres in the Rathdrum Prairie Project is the subject of continuing investigation, but plans are sufficiently well advanced to insure effective integration of the constructed Post Falls Unit and the proposed Hayden Lake Unit in the larger undertaking.

\* \* \* \* \*

9. The number of land holdings in the Hayden Lake Unit exclusive of those for which admission to the district is being sought totals 117, all except one of which, 62.5 acres in small tracts held by the Hayden Lake Holding Company, are owned by individuals. The ownership units, over 80 percent of which are operated by the owners, average somewhat less than 10 acres in size. Nearly half, 47.9 percent, are of five acres or less; 44.4 percent lie between 5.1 and 10 acres in size; and only 7.7 percent exceed 10 acres.

10. Due partly to lack of irrigation water, the intensive types



of land use normally anticipated on small units are not characteristic of the project area. General field crops, consisting in major part of hay and grain, were grown on 51 percent of the project area in 1945, and pasture accounted for an additional 21 percent. Fruits, principally apples, occupied about 10 percent, and family gardens somewhat more than two percent of the project area. Nearly six percent was idle or fallow, an equal percentage was used for buildings and grounds, and somewhat less than five percent was occupied by roads and other rights-of-way. Livestock are maintained in very limited numbers on this typical part-time farming area.

11. The large number of residences and small farmsteads accounts for the relatively high average value of \$379 per acre for land, buildings, machinery, and livestock in the project area. The value of land alone is relatively low, ranging from \$99 per acre on units of five acres or less in size to \$82 on units over 10 acres in size, and averaging about \$91. The estimated gross value of crops for the project area of 1,050 acres under present water conditions, but at average prices to be anticipated in years ahead, totals about \$22,400 or \$21.34 per acre. If estimated at prices prevailing in 1946, these values would be substantially greater.

\* \* \* \* \*

#### NEED FOR DEVELOPMENT

14. Rehabilitation of the irrigation system now serving the project area is imperative to assure the continued delivery of water. The original system, constructed in 1906, consisted of a pumping plant to lift water from Hayden Lake, about 100 feet below the general level of the project area, a discharge line of wood-stave pipe about 10,000 feet long, and a wood-stave pipe distribution system to serve 2,025 acres of land. In 1922, a new system was installed to replace the original, which had so deteriorated that only a small part of the water pumped was reaching the land. The discharge line was reconstructed in part of concrete pipe and in part of wood-stave pipe; and the lateral distribution system was replaced exclusively with concrete pipe. The 1.5 acre-feet per acre of water which it was possible to deliver to the entire area proved inadequate during the drier period encountered after 1922; operators found it difficult to meet annual charges; and the district defaulted payments of principal and interest on the bond issue floated to reconstruct the system. In 1933, the total bond issue of \$150,000 remained outstanding, the district owed \$50,000 in interest, and about half of the lands in the district had become delinquent on the county tax rolls. In the refinancing which took place in 1933, the bondholders, in return for cancellation of the bonded indebtedness and accumulated interest, took title to about half of the district lands, to which an adequate water supply could not be delivered, and accepted a payment of \$50 per acre or a first mortgage in that amount from owners electing to salvage their holdings. The district removed all but 987.5 acres of the original 2,025 from its assessment rolls and has

continued to provide irrigation water to the smaller acreage. This remaining acreage is now free from any lien for the former bonded debt. Deliveries have been entirely inadequate during recent years, however, because of repeated failures of the wood-stave pipe discharge line.

15. As a result of difficulties with the discharge line, water was delivered only four times during the 1945 irrigation season, and on each occasion the delivery was adequate only for about one-third of the project area. Available water was largely used on gardens, orchards, and truck crops. Anticipating the shortage on the basis of experience in previous years, a large acreage was planted to dry-farm grain crops. Few pastures received water and consequently provided little feed. In part because of drouth, fruit trees on many units were in an unproductive condition.

16. Hence, unless the proposed works are constructed, the lands of the district will revert to dry-farming, investments of land-owners and of the district will be lost, and some displacement of population will take place, though continued operation of a separate domestic water system of the district probably would permit continued use of the area for residential purposes. Beyond the losses which the development would prevent, the adequate and dependable supply of water assured by it would permit a substantial increase in the value of products grown, would increase the part-time operator's income from farm production, and would create a few additional opportunities on the 62.5 acres of the Hayden Lake Holding Company which are unattractive to prospective settlers under present conditions.

### PROPOSED PLAN OF DEVELOPMENT

17. Proposed construction work is limited to replacement of the 8,600 feet of wood-stave pipe discharge line placed in 1922 and overhaul of the pumping equipment. The lowest 1,100 feet of the replacement would be 30-inch, 10-gauge, welded steel pipe; and the remaining 7,500 feet would be of 30-inch, lock joint, reinforced concrete pipe. The existing concrete pipe discharge line beyond the replacement and the concrete pipe distribution system is in satisfactory condition. The domestic water system serving the project area, which has a separate pumping plant and separate distribution system, also is in satisfactory condition.

18. The project area includes some of the better lands of the Rathdrum Prairie. In accordance with classification standards established for the Rathdrum Prairie area, the project lands fall principally in Class 1. Though of only medium fertility, the soils are suited to general farming, truck crops, and some types of fruit production.

19. The water supply from Hayden Lake is adequate to permit the annual pumping of 2.5 acre-feet per acre for the 1,050 acre project area, in addition to other developed uses for domestic and irrigation water now dependent upon this source. With an estimated loss in the distribution system of six percent, deliveries would equal the established annual farm requirement of 2.35

acre-feet per acre. Tests by the State Bacteriological Laboratory indicate that the quality of the water from Hayden Lake now delivered through the domestic water system is entirely satisfactory for domestic use. No question of priority of water right with two other small irrigation districts which pump from Hayden Lake is in prospect, inasmuch as the Hayden Lake Irrigation District holds the senior right to diversion.

### COSTS

20. Construction costs, based on unit prices prevailing in 1946, are estimated at \$90,650. This rounded total is made up of the following items: discharge line, \$67,960; pump and motor overhaul, \$2,000; right-of-way, \$200; investigations, \$1,500; and engineering, contingencies, and overhead, \$18,990. Average annual construction costs, assuming a 40-year repayment period without interest, would amount to \$2.16 per acre on the enlarged project area.

21. Operation and maintenance costs for the project assuming an area of 1,050 acres, based on itemized past expenditures of the district, are estimated at \$4,220 annually, or \$4.02 per acre. Estimated annual costs for operation and maintenance and for repayment of construction costs in 40 years thus total \$6.18 per acre for the expanded project area.

### BENEFITS \* \* \*

### REPAYMENT

23. Annual assessments for irrigation water levied by the district were \$4.00 per acre prior to 1944, when they were increased to \$4.50. Payments have been successfully met, and all assessments are paid up. It cannot be assumed, however, that water users would long continue to pay assessments of \$4.50 per acre for the poor service now received.

\* \* \* \* \*

### CONCLUSIONS

27. The proposed plan is feasible as an engineering development; its prospective benefits exceed the costs; and full repayment of construction costs by water users is possible. In view of these considerations, it is concluded that the development should be undertaken. Repayment is in part dependent upon employment in off-farm work, the continued availability of which, in the volume now enjoyed, is uncertain. The suggested annual water charge of \$5.75 is believed to be the maximum payment that it is safe to assume water users can meet during the 40 year repayment period, all factors considered. Such payments would fall short by \$17,850 (after meeting expected operation and maintenance expenses of repaying the estimated construction cost of

\$90,650 in 40 years). Water users in Hayden Lake Irrigation District, however, have authorized the Board to levy a cash assessment on project lands to raise \$17,850 (or such like amount as needed) and to place this money in escrow prior to authorization of the project for payment to the United States of America when authorization of the project has been secured. In view of the favorable wartime earnings in the area, it is believed that water users can make such cash payments (averaging \$17.00 per acre) from savings and hence their ability subsequently to pay the recommended annual water charges will not be impaired.

The proposed plan not only would preserve established improvement values and prevent loss of that portion of the family income secured by project residents from their units (if not prevent migration in search of opportunities elsewhere) but also would permit residents to increase substantially the value of products obtained from their units, and thus stabilize the economy of the area.

#### . RECOMMENDATIONS

##### 28. It is recommended:

a. That the following works, and such appurtenant works as may be incidental thereto, constituting the Hayden Lake Unit of the Rathdrum Prairie Project, be authorized to be constructed by the Bureau of Reclamation, Department of the Interior, substantially in accordance with plans set forth in this report, with such modifications, omissions or additions as you, with the approval of the Secretary, may find proper for carrying out the project to the end of providing irrigation water to the 987.5 acres of land now served by the Hayden Lake Irrigation District, and to 62.5 acres, the owners of which have petitioned for inclusion in the District, and which can be served by works of the District, to wit:

Replacement of 8,600 feet of wood-stave pipe discharge line,  
Overhaul of installed motor and pump equipment;

b. That the Hayden Lake Unit of the Rathdrum Prairie Project be authorized to be constructed, operated, and maintained in accordance with the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto): Provided:

(1) That this report shall be deemed to satisfy the requirements of the Federal Reclamation Laws governing the submission to the President and the Congress of a finding of engineering feasibility;

(2) That the water users shall be required to pay the total cost of construction of the proposed works in the maximum repayment period and on terms and conditions available under the provisions of subsection 9 (d) of the Reclamation Project Act of 1939, of which amount all estimated costs in excess of \$72,800

may be required by the Secretary to be paid as a condition precedent to the initial delivery of water by means of the proposed works.

(Signed) R. J. NEWELL,  
*Regional Director.*

BUREAU OF RECLAMATION,  
*Washington, April 28, 1947.*

The SECRETARY OF THE INTERIOR.

SIR: A plan for the development of the Hayden Lake unit, Rathdrum Prairie project, located in Kootenai County in northern Idaho, is presented in this report which is based on the accompanying report of the regional director, Boise, Idaho, dated October 1946, and entitled, "Hayden Lake unit, Rathdrum Prairie project, Idaho." The plan of development has been formulated to preserve improvement values and increase crop production on 1,050 acres of land now served by the deteriorated system of the established Hayden Lake irrigation district. Plans for the contemplated Rathdrum Prairie project are sufficiently well advanced to insure effective integration of the Hayden Lake unit in the larger undertaking.

Irrigation of the project lands was first undertaken in 1906 and at that time the district embraced 2,025 acres. The district was refinanced in 1933, and at that time the irrigated acreage was reduced to 987.5. The Hayden Lake irrigation district has been petitioned by landowners to place 62.5 acres of additional land on its assessment rolls. The project system includes a pumping plant to lift water from Hayden Lake, which is about 100 feet below the project area, a wood-stave and concrete pipe discharge line about 10,000 feet long, and a concrete pipe distribution system. Deliveries of water to project lands during recent years have been entirely inadequate due to repeated failures of the wood-stave pipe discharge line. Unless the existing works are rehabilitated, the lands of the district will revert to dry-farming, and investments of landowners and of the district will be lost. However, continued operation of a separate domestic water system of the district probably would permit continued use of the area for residential purposes.

Within the Hayden Lake project area, the characteristic use of land is a combination of suburban residence and part-time farming. A few operators, engaged in intensive types of farming such as dairying or the production of truck and fruit crops, are full-time farmers, and a few additional residents are engaged in full-

time farming on nearby dry-farmed wheat lands. Forty-one percent of the landowners, however, were engaged full time in work away from their units during 1944. There are 117 land holdings in the Hayden Lake unit exclusive of those for which admission to the district is being sought. With only one exception, all of these are owned by individuals. The exception is made up of the holdings of the Hayden Lake Holding Co., 62.5 acres in all. The ownership units average somewhat less than 10 acres in size. Nearly half are of 5 acres or less. The large number of residences and small farmsteads account for the relatively high average value of \$379 per acre for land, buildings, machinery, and live-stock in the project area.

The plan of development provides for replacement of the 8,600 feet of wood-stave pipe discharge line and overhaul of the pumping equipment at an estimated construction cost of \$90,650. The system will then be adequate to serve an area of 1,050 acres. The project is found to be economically feasible and it has a benefit to cost ratio of 3.14 to 1.00. It will be noted, however, that the Bureau's undertaking this work will result in an irrigation system, title to part of which would be in the United States and title to the remainder of which would be in the irrigation district. The protection of the Federal investment will, therefore, require that arrangements be made with the district for operation and maintenance of their portion of the works by the United States in the event that the Secretary of the Interior finds that the security of the Federal investment is being prejudiced by inadequate maintenance of the district's works or for any other reason.

The water users of the Hayden Lake irrigation district are now successfully meeting annual assessments of \$4.50 per acre and it is indicated that they will be willing to meet annual assessments of \$5.75 per acre. Since the average land holdings are too small to provide suitable income for subsistence of a family, proposed future assessments will be dependent on the continuance of off-the-farm employment in the area. It is estimated that after project development the annual operation and maintenance costs will be \$4.02 per acre, and thus \$1.73 of the total annual payment per acre would be applicable to the retirement of construction costs. On this basis, total payments toward construction charges would equal \$72,800 in a 40-year period. This would fail to retire the total estimated construction costs of \$90,650 by an amount of \$17,850 or \$17 per acre.

Water users in the Hayden Lake irrigation district have authorized the board of directors to levy a cash assessment on project lands to raise immediately \$17,850 (or such like amount as needed) and to place this money on deposit for payment to the United States of America when the Congress appropriates funds for construction of the project or at such other time, such as completion of project construction, as might be fixed by the United States. This contribution, together with the total annual repayments over a 40-year period, would reimburse the initial construction cost.

Based on this contribution from the water users to supplement

the amount which it is estimated they can reasonably be expected to repay in 40 years, the project meets the requirements for authorization under section 9 (a) of the Reclamation Project Act of 1939. I find that the proposed construction has engineering feasibility; that the estimated cost of the proposed construction is \$90,650; that the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users is \$90,650 (predicated on the proposed advance contribution noted above); that no part of the estimated cost can be properly allocated to power; and that no part of the estimated cost can be properly allocated to municipal water supply or other miscellaneous purposes. I recommend that you adopt this as your proposed report on the Hayden Lake unit of the Rathdrum Prairie project, Idaho, and that you authorize me, in your behalf, to transmit copies of this letter and of the attached report to the affected State of Idaho and to the Secretary of War in accordance with the requirements of the Flood Control Act of 1944. Upon clearance with the affected State and the Secretary of War, copies of this and the accompanying reports, together with the comments, if any, of the affected State and the Secretary of War, will be submitted for your transmittal to the President and, subsequently, to the Congress.

It is clear that the project meets the standards of section 9 (a) of the Reclamation Project Act of 1939 and, in the absence of adverse comments from the affected State and the Secretary of War, you may authorize the project for construction by presentation of these findings and report to the President and the Congress. I recommend, however, that, if authorized, construction be deferred until the Hayden Lake irrigation district has deposited for payment to the United States on completion of construction, under an agreement satisfactory to you, an amount which, together with the estimated annual repayments over a 40-year period, is equal to the estimated cost of the project, and until the district has also agreed that, by appropriate provisions in the repayment contract or elsewhere, it will consent to the United States taking over the operation and maintenance of all portions of the project, title to which is in the district, if, in the judgment of the Secretary, such action is necessary to protect the Federal investment and will consent to such an increase in the operation and maintenance charges as is required in the event of such action.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved May 5, 1947.

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

OFFICE OF THE SECRETARY,  
*Washington, June 9, 1947.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: There is enclosed a report to me, dated April 28, 1947, from the Commissioner of Reclamation and an accompanying report, dated October 1946, by the regional director of the Bureau of Reclamation on the Hayden Lake unit of the Rathdrum Prairie project, Idaho. Both reports recommended that the Hayden Lake unit be authorized for construction by the Bureau of Reclamation.

The Commissioner has obtained the written views of the affected State of Idaho and of the Secretary of War, as the Flood Control Act of 1944 requires. Neither of them has any objection to the report or to the construction of the project. Letters of comment on the report from the Department of Agriculture and from the Federal Power Commission have been obtained. They, too, are in agreement with the findings of the report. Copies of the letters referred to above are attached.

I find that the proposed construction has engineering feasibility, that the estimated cost of the proposed construction is \$90,-650, and that the whole of the estimated cost can properly be allocated to irrigation and probably be repaid by the water users. Consequently I find the Hayden Lake unit of the Rathdrum Prairie project authorized for construction under the provisions of section 9 (a) of the Reclamation Project Act of 1939.

Unless you have an objection, the report and the other documents enclosed will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

BUREAU OF RECLAMATION,  
*Washington, D. C.*

THE SECRETARY OF THE INTERIOR.

SIR: On May 5, 1947, you approved my proposed report of April 28 on the Hayden Lake unit, Rathdrum Prairie project, Idaho, adopting it as your proposed report. In that report it was



concluded that the project met the standards of feasibility prescribed in section 9 (a) of the Reclamation Project Act of 1939 and that, in the absence of adverse comments from the affected State and from the Secretary of War, you might authorize the project for construction by presentation of a finding of feasibility to the President and to the Congress.

You authorized me to transmit copies of your proposed report to the affected State of Idaho and to the Secretary of War in accordance with the requirements of the Flood Control Act of 1944. Copies of the replies are attached. The Secretary of War has stated that the proposed project will not conflict with any flood control or navigation interests of the War Department, and the Governor of Idaho has recorded approval of the plan and project as presented in the report. In addition, the Department of Agriculture and the Federal Power Commission have reviewed the report and copies of their comments are attached. The comments of the Department of Agriculture are favorable to the development of the project, and the Federal Power Commission reports that no water power values would be impaired.

Accordingly, it is recommended that you adopt the proposed report of April 28, 1947, as your report; that you find the Hayden Lake unit of the Rathdrum Prairie project to be feasible in accordance with the provisions of section 9 (a) of the Reclamation Project Act of 1939; and that you transmit it, together with the attached comments, to the President and subsequently to the Congress.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved and adopted June 9, 1947.

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
*Washington, June 20, 1947.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge receipt of Acting Secretary Oscar L. Chapman's letter dated June 9, 1947, addressed to the President through the Bureau of the Budget, enclosing a proposed report on the Hayden Lake unit of the Rathdrum Prairie project, Idaho.

The Director of the Bureau of the Budget, in compliance with

instructions of the President dated July 2, 1946, has authorized me to advise you that there would be no objection to the submission of the proposed report to the Congress.

Sincerely yours,

(Signed) L. C. MARTIN,  
*Assistant Director, Estimates.*

OFFICE OF THE SECRETARY,  
*Washington, July 7, 1947.*

Hon. JOSEPH W. MARTIN, Jr.,  
SPEAKER OF THE HOUSE OF REPRESENTATIVES.

MY DEAR MR. SPEAKER: In accordance with the requirements of section 9 of the Reclamation Project Act of 1939, I submit herewith my report and findings on the Hayden Lake unit of the Rathdrum Prairie project, Idaho.

I find that the proposed construction has engineering feasibility, that the estimated cost of the proposed construction is \$90,650, and that the whole of the estimated cost can properly be allocated to irrigation and probably be repaid by the water users.

Pursuant to the procedures contemplated in section 1 of the Flood Control Act of 1944 (58 Stat. 887), the report has been transmitted to the Governor of the State of Idaho and to the Secretary of War. Their views are incorporated in the enclosed documents.

The requirements of section 9 (a) of the Reclamation Project Act of 1939 and of section 1 of the Flood Control Act of 1944 having been met, the project is authorized for construction in accordance with the Federal Reclamation Laws.

On June 20, this report was submitted to the President. The Bureau of the Budget has advised, on instructions of the President, that there would be no objection to the submission of this report to the Congress.

Sincerely yours,

(Signed) OSCAR L. CHAPMAN,  
*Under Secretary of the Interior.*

PROVISIONS OF FIRST DEFICIENCY  
APPROPRIATION ACT, 1948

[Extract from] An act making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1948, and for other purposes. (Act of May 10, 1948, 62 Stat. 213, Public Law 519, 80th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, to supply supplemental appropriations for the fiscal year ending June 30, 1948, and for other purposes, namely:

\* \* \* \* \*

Rathdrum Prairie project, Idaho, \$109,500 to be available for emergency rehabilitation of the works of the Hayden Lake unit.

# RIO GRANDE PROJECT<sup>1</sup>

## DAM AND RESERVOIR

An act relating to the construction of a dam and reservoir on the Rio Grande, in New Mexico, for the impounding of the flood waters of said river for purposes of irrigation. (Act February 25, 1905, 33 Stat. 814, Public Law 104, 58th Cong., 3d sess.)

\* \* \* That the provisions of the Reclamation Act approved June seventeenth, nineteen hundred and two, shall be extended for the purposes of this Act to the portion of the State of Texas bordering upon the Rio Grande which can be irrigated from a dam to be constructed near Engle, in the Territory of New Mexico, on the Rio Grande, to store the flood waters of that river, and if there shall be ascertained to be sufficient land in New Mexico and in Texas which can be supplied with the stored water at a cost which shall render the project feasible and return to the reclamation fund the cost of the enterprise, then the Secretary of the Interior may proceed with the work of constructing a dam on the Rio Grande as part of the general system of irrigation, should all other conditions as regards feasibility be found satisfactory.

OFFICE OF THE SECRETARY,  
*Washington, November 25, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: I am in receipt of your communication of the 15th instant relative to the Engle dam in New Mexico, in which for reasons stated you recommend "that this project be considered in connection with the other emergency projects and that appropriate instructions be given as to the action to be taken concerning these water users associations."

<sup>1</sup> The Treaty with Mexico providing for distribution of water of the Rio Grande was signed May 21, 1906.

The Reclamation Act was extended to Texas by Act of Congress, June 12, 1906.

After a careful consideration of your communication, and of Departmental approval on May 10, 1905, of the recommendations of the Reclamation Service made April 3, 1905, I desire to inquire if the recommendations in your said letter of the 15th instant are not premature.

The first paragraph of the recommendations approved by the Department on May 10, 1905, reads as follows:

That, subject to such possible Congressional action, the Reclamation Service be authorized, in accordance with the act of February 25, 1905, to ascertain whether there is sufficient land in New Mexico and Texas which can be supplied with the stored water at a cost which shall render the Engle dam feasible.

In a letter of April 3, 1905, on this subject you stated "In a great question like this which has been investigated from many standpoints, there is opportunity for divergence of opinion and *final action can only be taken wisely with full consideration of the facts* and of the larger policy of the Government in its treatment of International waters. (The emphasis is mine.)

You will remember that your recommendations of April 3, supra, were the subject of considerable correspondence between this Department and the Department of State before Departmental action thereon on May 10th. Since the last named date there has been nothing received at the Department in the way of detailed information except your letter of the 15th instant, which has informed the Department that "there is sufficient land in New Mexico and Texas which can be supplied with the stored water at a cost which shall render the Engle dam feasible."

In view of the statement in your letter of April 3, 1905, which I have underscored on the first page hereof, I am of the opinion that the Department should have full and complete details of the investigations which it authorized the Reclamation Service to make under the act of February 25, 1905, before I would be justified in taking final or definite action in relation thereto. I have therefore to request that you submit a full and detailed report of the action taken by the Reclamation Service under Departmental instructions of May 10, 1905, with a complete statement of the conditions exactly as they exist, in order that the Department may be fully informed in the premises, together with such suggestions and recommendations as you may deem advisable.

In any event, the Department would like to be advised as to what is meant by the expression "other emergency projects" and what "action," in view of the situation as herein stated, should in your judgment be taken concerning these water users associations.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
Secretary.

UNITED STATES GEOLOGICAL SURVEY,  
*Washington, November 29, 1905.*

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Supplementing my letter of November 27 in relation to the Rio Grande project, I have the honor to submit the following recommendations, based upon my understanding of the policy outlined in your letter of November 8 regarding the Teton project, and your instructions of November 28 on the Carlsbad project.

First, it is recommended that the sum of \$200,000 be allotted to the immediate construction of the Leasburg diversion dam and canal;

Second, it is also recommended that the usual form of contract be entered into with the water users' associations, named in my letter of November 27, guaranteeing the return to the Government of all expenditures made under the terms of the Reclamation Act.

Respectfully yours,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, December 2, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: I am in receipt of your communication of the 27th ultimo replying to Departmental letter of the 25th ultimo relative to the Rio Grande Project; also your letter of November 29th in regard to the Leasburg diversion dam and canal is at hand.

In your said letter of the 29th instant you recommend as follows:

First, it is recommended that the sum of \$200,000 be allotted to the immediate construction of the Leasburg diversion dam and canal.

Second, it is also recommended that the usual form of contract be entered into with the water users' associations, named in my letter of November 27, guaranteeing the return to the Government of all expenditures made under the terms of the Reclamation Act.

On the same date as that of your last mentioned letter, I had a conference with Mr. Holt, President of the Elephant Butte Water Users Association of New Mexico and Mr. Martinez, Chairman of the Executive Committee of the El Paso Valley Water Users Association, and other gentlemen from that locality relative to the construction of the Leasburg diversion dam, and canal. As a

result of that conference these gentlemen, speaking for the water users associations and those who will be benefited by the construction of said diversion dam, stated to the Department that rather than fail in securing favorable action on the request for an appropriation sufficient to construct said dam, a satisfactory guaranty would be given the Department that all moneys expended, up to \$200,000, for the construction of said dam from the Reclamation Fund should be returned to that fund in two years.

In view of the above and foregoing and of your recommendations of the 29th ultimo, and on the condition that the return in two years of all moneys expended from the Reclamation Fund, up to \$200,000, for the construction of said dam and canal be guaranteed by an appropriate instrument in writing, the form of which shall be submitted to the Department for its consideration at the earliest practicable date, with such suggestions and recommendations as you may deem advisable in the premises, \$200,000 is hereby allotted and appropriated from the Reclamation Fund for the immediate construction of the Leasburg diversion dam and canal.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

## EXTENSION OF RECLAMATION ACT TO TEXAS

An act to extend the Irrigation Act to the State of Texas. (Act June 12, 1906, 34 Stat. 259, Public Law 225, 59th Cong., 1st sess.)

\* \* \* That the provisions of the Act entitled "An Act appropriating the receipts from the sale and disposal of public lands in certain States and Territories to the construction of irrigation works for the reclamation of arid lands," approved June seventeenth, nineteen hundred and two, be, and the same are hereby, extended so as to include and apply to the State of Texas.

## PROVISIONS OF SUNDRY CIVIL EXPENSES APPROPRIATION ACT, 1908

[Extract from] An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1908, and for other purposes. (Act March 4, 1907, 34 Stat. 1295, 1357, Public Law 253, 59th Cong., 2d sess.)

\* \* \* That the following sums be, and the same are hereby,

appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely:

\* \* \* \* \*

*Convention with Mexico.*—Toward the construction of a dam for storing and delivering sixty thousand acre-feet of water annually, in the bed of the Rio Grande at the point where the headworks of the Acequia Madre now exists, above the city of Juarez, Mexico, as provided by a convention between the United States and Mexico, proclaimed January sixteenth, nineteen hundred and seven, one million dollars, to be available as needed and to be expended under the direction of the Secretary of the Interior in connection with the irrigation project on the Rio Grande: *Provided*, That the balance of the cost of said irrigation project over and above the amount herein appropriated shall be allotted by the Secretary of the Interior as may be needed and as may be available from time to time from the Reclamation Fund and collected from the settlers and owners of the land benefited under the provisions of the Reclamation Act approved June seventeenth, nineteen hundred and two, and acts supplemental thereto or amendatory thereof.



# RIVERTON PROJECT<sup>1</sup>

## INDIAN AFFAIRS APPROPRIATION ACT, 1917

[Extract from] An act making appropriations for the current and contingent expenses of the Bureau of Indian Affairs, for fulfilling treaty stipulations with various Indian tribes, and for other purposes, for the fiscal year ending June thirtieth, nineteen hundred and eighteen. (Act March 2, 1917, 39 Stat. 969, 993, Public Law 369, 64th Cong., 2d sess.)

\* \* \* That the following sums be, and they are hereby, appropriated, out of any money in the Treasury not otherwise appropriated,

\* \* \* \* \*

For continuing the work of constructing an irrigation system within the diminished Shoshone or Wind River Reservation, in Wyoming, including the Big Wind River and Dry Creek Canals, and including the maintenance and operation of completed canals, \$150,000, and to enable the Secretary of the Interior to make such additional surveys and examinations as may be required for the purpose of preparing and submitting with the estimates to be submitted before the first regular session of the Sixty-fifth Congress of an estimate for the beginning of construction of a project for the watering of a portion of the conditionally ceded lands of the Wind River Reservation, in substantial accordance with the plan outlined in House Document Numbered Seventeen hundred and sixty-seven, of the Sixty-fourth Congress, second session, or such modification of such plan as the said Secretary may approve, \$5,000, reimbursable in accordance with the provisions of the act of March third, nineteen hundred and five, and to remain available until expended.

## INDIAN BUREAU APPROPRIATIONS, 1919

[Extract from] An act making appropriations for the current and contingent expenses of the Bureau of Indian Affairs, for fulfilling treaty stipulations with various Indian

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<sup>1</sup> The *Riverton Project* was authorized under the terms of the Indian Appropriation Act of May 25, 1918, and placed under jurisdiction of the Bureau of Reclamation by Act of Congress, June 5, 1920.

tribes, and for other purposes, for the fiscal year ending June thirtieth, nineteen hundred and nineteen. (Act May 25, 1918, 40 Stat. 561, 590-591, Public Law 159, 65th Cong., 2d sess.)

\* \* \* That the following sums be, and they are hereby, appropriated, out of any money in the Treasury not otherwise appropriated, for the purpose of paying the current and contingent expenses of the Bureau of Indian Affairs, for fulfilling treaty stipulations with various Indian tribes, and in full compensation for all offices and salaries which are provided for herein for the service of the fiscal year ending June thirtieth, nineteen hundred and nineteen, namely:

\* \* \* \* \*

For continuation of investigations, beginning of construction and incidental operations on a project for the irrigation of a portion of the conditionally ceded lands of the Wind River Reservation, Wyoming, \$100,000, reimbursable in accordance with the provisions of the act of March third, nineteen hundred and five, and to remain available until expended: *Provided*, That the construction charge for the actual cost of said project shall be fixed by the Secretary of the Interior and divided equitably between the Indian land and public and private land irrigated by such project, and that the charge as fixed for said Indian lands shall be reimbursable in accordance with the provisions of the act of March third, nineteen hundred and five, and that the charges as fixed for private and public land irrigated under such project shall be paid by the owner or entryman in accordance with the terms of payment of construction and maintenance charges as provided by the reclamation law and amendments thereto.

OFFICE OF THE SECRETARY,  
*Washington, June 19, 1918.*

The DIRECTOR OF THE RECLAMATION SERVICE.

DEAR MR. DIRECTOR: Your attention is called to an item found on page 33 of the Indian Appropriation Act, Public #159, carrying an appropriation of \$100,000 "for continuation of investigations, beginning of construction and incidental operations on a project for the irrigation of a portion of the conditionally ceded lands of the Wind River Reservation, Wyoming." It is the understanding of this Department and of the Indian Office, that this work is to be conducted by the Reclamation Service in a similar

manner to work heretofore performed by the Reclamation Service upon Indian irrigation projects. You will, therefore, please take the necessary steps, or make the necessary report and recommendations to the Department, to carry the requirements of the law described into effect.

Very truly yours,

(Signed) ALEXANDER T. VOGELSANG,  
*Acting Secretary.*

### PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1921

[Extract from] An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1921, and for other purposes. (Act June 5, 1920, 41 Stat. 874, 915, Public Law 246, 66th Cong., 2d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the fiscal year ending June 30, 1921, namely:

The following sums are appropriated out of the special fund in the Treasury of the United States created by the act of June 17, 1902, and therein designated "the Reclamation Fund":

\* \* \* \* \*

Riverton project, Wyoming: For the reclamation of lands within and in the vicinity of the ceded portion of the Wind River or Shoshone Reservation, including operation and maintenance, continuation of construction, and incidental operations, \$100,000: *Provided*, That said lands shall be subject to all the charges, terms, conditions, provisions, and limitations of the Reclamation Act and acts amendatory thereof or supplementary thereto, and suitable provision shall be made by the Secretary of the Interior in fixing the charges to provide for reimbursement of the entire expenditure in accordance with the Reclamation law and other laws applicable to said lands.

# SALT LAKE BASIN PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, September 9, 1933.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: Section 4 of the Act of June 25, 1910 (36 Stat. 835), provides in effect that after the date of that act no irrigation project to be constructed under the act of June 17, 1902 (32 Stat., 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The following data are submitted with respect to the Second Division of the Salt Lake Basin project of Utah, usually designated the Cache Valley Division, located in the vicinity of Logan, Utah, in the watershed of Bear River.

## THE PROJECT

Cache Valley, in northern Utah, is largely irrigated from a number of typical mountain streams rising in the mountains east thereof with water supply for irrigation generally deficient in late summer, although there is much surplus water in the winter and flood season storage has not been provided. Cheap storage sites are not available and the financial resources of the community have not been adequate to the task of storing flood water

<sup>1</sup>The *First Division* of the *Salt Lake Basin Project* (Echo Reservoir, Utah Lake Control, and Weber-Provo Canal) is shown under Weber River Project (page 563).

for later use. The project comprises, in the main, a reservoir on Little Bear River at Hyrum and a canal leading therefrom on the westerly side of the stream to intercept several streams of weak flow from which a number of small canals serve irrigated lands. The storage yield will in the main be used to supplement the inadequate supply for 8,000 acres now irrigated. Incidentally, irrigation will also be provided for 4,000 acres of lands now largely dry-farmed to wheat, which lands will upon irrigation be devoted to crops of less competitive nature and provide opportunities for an increased farm population. A small part of the developed water will be taken by local communities which would otherwise probably encroach on the natural flow to satisfy their growing requirements.

### THE WATER SUPPLY

From a study of stream flow records extending over a period of 25 years it has been concluded that the reservoir would fill every year, with surplus waters available in the winter and during the spring floods. Individual requirements for storage vary from one-half to three acre feet per acre, depending on the sufficiency of present supplies, the character of the land and its crop adaptability. Surplus stream flow after filling the reservoir will also be available for direct use where desired. The resulting water supply will be adequate for all lands served.

### THE ENGINEERING FEATURES

The reservoir will be formed by an earth fill dam with rock, riprapped face, 90 feet high and 525 feet long at the top. A concrete-lined spillway will cross a nearby saddle in the surrounding hills. A concrete lined tunnel in one abutment, at river level, will divert the stream during construction and later be provided with a riser at its lower end to serve the canal leaving the dam forty feet above the river. Of the 18,000 acre feet of gross storage capacity, 4,000 acre feet will be useful only to retain inflowing silt and to provide the head for a hydro-pumping plant to serve a small area above the main canal, which by this plan is advantageously located to serve the largest possible area. The main canal has a length of 14 miles and a maximum capacity of 75 second feet. Only the simplest of construction is involved. The dam site has been amply tested by drilling and the geological report is favorable.

### COST OF CONSTRUCTION

Reservoir .....	\$670,000
Canals .....	262,000
Total .....	<u>932,000</u>

### LAND PRICES AND COST OF DEVELOPMENT

Land values at this time are conjectural. Sales are made only

under extreme pressure and the results are not indicative of values. A few years back, improved lands with a fair water supply commanded prices up to \$300 per acre. Where there has been sufficient water to irrigate during the entire growing season, the average holding is less than 40 acres with intensive farming the rule, the small farms being devoted to sugar beets, dairying and the growing of vegetables for table consumption. Such lands are almost entirely owned and operated by residents either on the land or in towns within two or three miles. They are tenaciously held in the family. Over half of the total area is of this character. The balance gradually grades into larger holdings where lack of irrigation water limits agriculture to grain-growing by dry-farming methods, at best a hazardous undertaking. These lands with water will be promptly devoted to the prevailing type of irrigated agriculture when water is available. No land development or settlement problems exist. The small area not already irrigated is settled, improved, farmed, and ready for water.

#### RETURN OF COST

The United States will contract with a water users' association for the repayment, under the terms of the Reclamation Law, of all cost, without interest, over a period of not to exceed forty years. The association will issue stock to individuals, ditch companies, and one irrigation district in proportion to the amount of water desired and payments will be made pursuant to suitable stock assessments. Security for payment will be obtained by a lien on existing irrigation works and water rights, supplemented where such are of inadequate value, by a lien on land to be incorporated in an irrigation district. Individuals desiring to make stock subscriptions under these conditions have evidenced such desire, in writing, as to 90% of the water supply to be made available.

Crop values under normal conditions without allowance for the conversion thereof, on the farm, to dairy, poultry, and livestock products will average at least \$50 per acre.

I find the Second Division of the Salt Lake Basin Project to be feasible, that the Division is adaptable for actual settlement and farm homes and that the cost of the development will in all probability be returned to the United States within the period of forty years.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved September 18, 1933.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# SALT RIVER PROJECT

The *Salt River Project* was found feasible under the original Reclamation Act prior to its amendments. For the Director's finding of feasibility (page 601), and the Secretary's authorization (page 609).

# SAN DIEGO PROJECT

The *San Diego Project* was an emergency project, found feasible by a committee appointed by the President, and approved for construction by the President, November 29, 1944.

OFFICE OF THE SECRETARY,  
*Washington, October 25, 1944.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: In your letter of October 3 to Assistant Commissioner William E. Warne of the Bureau of Reclamation, whom you designated as Chairman of the Committee to consider the San Diego water supply problem, your instructions were that the report of the Committee was to be transmitted through me with my comments.

The Committee has completed its report, which is attached.

The emergency which is found with respect to the San Diego water supply system and the Santa Margarita area warrants the recommendations that are made.

While it would be possible to meet the present war needs with an emergency connection with the Colorado River Aqueduct of a capacity of 25,000,000 gallons per diem, such an installation would have no safety margin. The 50,000,000 gallon per diem aqueduct, which the Committee has recommended, will not cost materially more and will have permanent value. Tunnels (of which there are about 4 miles) and other basic structures for the recommended aqueduct should be constructed as proposed by the Committee with the ultimate capacity of 100,000,000 gallons per diem, if the cost be not unreasonably increased thereby. With regard to some of these structures, the tunnels, for example, the larger size may be actually cheaper to build.



You will note that the Committee observes that, although you have indicated that the Bureau of Reclamation should build the aqueduct needed now, the Bureau of Yards and Docks of the Navy Department, which has the paramount immediate interest, might be designated as the construction agency for the emergency project. I concur in the latter view, because I believe that it will be easier for the Bureau of Reclamation to conclude the necessary arrangements with the local interests for continued use of the aqueduct after the war, if the Bureau does not carry the responsibility of liquidating the costs of the wartime project.

I suggest, therefore, that:

1. The report of the Committee be approved.
2. The Bureau of Yards and Docks, Navy Department, perform the construction work connected with the wartime project.
3. The Bureau of Reclamation complete the plans and specifications, with cooperation and aid as needed from the Army and the Navy, and with an allotment of \$500,000, or so much thereof as may be required, from Lanham Act funds of the Federal Works Agency, and that the Bureau of Reclamation continue its relationships with the local interests looking toward completion after the war under the Reclamation Law of the ultimate project.
4. The San Diego County Water Authority and the City of San Diego be urged to press the negotiations with the Metropolitan Water District of Southern California to the end that by the conclusion of the war emergency satisfactory arrangements may have been completed with the Metropolitan District for continued use of the aqueduct.
5. The Congress be advised concerning the report and action taken, and Senator Downey sent a copy of the report.

I have had prepared letters for your consideration, if you approve the report and these suggestions. These letters follow the suggestions that I have made and accord with the report.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved November 29, 1944.

(Signed) FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,  
*Washington, November 29, 1944.*

Hon. HENRY A. WALLACE,  
*President of the Senate.*

MY DEAR MR. VICE PRESIDENT: An impending emergency in the water supply of San Diego County, California, has been called to my attention. Owing to the very large Naval, other military,

war industrial, and war housing installations in the area, the situation is of emergency importance to the Federal Government.

At my direction, an Inter-Departmental Committee, on which the San Diego County Water Authority also had membership, reviewed the problem, and has reported to me. The War Department, the Navy Department, the Department of the Interior, and the Federal Works Agency were represented on the committee. Engineering investigations and surveys were begun in 1943 by the Bureau of Reclamation, Department of the Interior, working in cooperation with the City of San Diego, the County of San Diego, and the Federal Works Agency. Fortunately these studies had proceeded to points at which decisions could be safely made.

I am attaching a copy of the report of the committee, which has been reviewed by the Secretary of the Interior and which I approve. In accordance with the recommendations of the committee, joined in by the Secretary of the Interior, I have instructed that the emergency be met in keeping with the report.

The Bureau of Reclamation has been directed to complete the plans and specifications for the construction of the aqueduct from San Jacinto, California, to the San Vicente reservoir, and the Army, Navy, and Federal Works Agency have been directed to cooperate with the Bureau to that end. The Bureau of Yards and Docks, Navy Department, has been instructed to construct the emergency water connection, with the other agencies cooperating. After the war emergency, the Bureau of Reclamation, which will continue its existing relationships with the local interests, will be in a position to assume charge of the aqueduct, and, when suitable arrangements with the local interests have been completed, to build the permanent additional works. I have asked the San Diego County Water Authority, and the city of San Diego, to press negotiations with the Metropolitan Water District of Southern California in order that an equitable arrangement may be completed for the permanent operation of the works, which will have continued value and utility.

While the emergency demanded the actions that have been taken, the Congress in the future may have submitted to it recommendations for additional work under the Reclamation Laws in connection with this project, and I am, therefore, submitting to you now this explanation and report.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

(Same letter to Hon. Sam Rayburn, Speaker of the House of Representatives.)

THE WHITE HOUSE,  
Washington, November 29, 1944.

Hon. HAROLD L. ICKES,  
*Secretary of the Interior,*

MY DEAR MR. ICKES: In response to your memorandum of October 3 with regard to the critical water supply situation in the vicinity of San Diego, California, a committee was organized, has studied the problem, and has reported to me. I have approved the report and am attaching a copy of it for your information and guidance. I have also transmitted the report to the Congress.

The Bureau of Reclamation will complete the plans and specifications for the aqueduct. It should make application to the Federal Works Agency for an allotment of \$500,000, or so much thereof as may be needed, to perform this work. The Bureau of Yards and Docks will perform the emergency construction, and I have asked the Secretary of the Navy to arrange for cooperation with the Bureau of Reclamation during the period of preparation of the plans and specifications in order that they may satisfy the Navy's needs. The post-war operation of the project will be under arrangements to be made by the Bureau of Reclamation, the Navy Department, and the local interests. The Navy Department has been asked to cooperate with your Department in this regard.

The excellent cooperation that has existed among the agencies concerned, I know will be continued.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

# SAN LUIS VALLEY PROJECT<sup>1</sup>

BUREAU OF RECLAMATION,  
*Washington, January 25, 1940.*

The SECRETARY OF THE INTERIOR.

SIR: I am transmitting the report on the San Luis Valley project on the Rio Grande headwaters in Colorado, prepared after consultation with the Corps of Engineers of the War Department, which is also making a similar report. Both reports contemplate construction for joint irrigation and flood-control purposes of the Wagon Wheel Gap Reservoir of 1,000,000 acre-feet on Rio Grande near Creede, and two reservoirs with a combined capacity of 100,000 acre-feet on Conejos River southwest of Alamosa, to provide supplemental water and flood protection for 400,000 acres of irrigated land in Colorado and a lesser benefit to the Rio Grande Valley in New Mexico. The works will assist in the application of the Rio Grande Compact. The Bureau report further adds to the project a small transmountain diversion from the Colorado River Basin to the Rio Grande Basin to assist San Luis Valley in complying with the compact. The Bureau report finds power development unwarranted at this time but provisions for future development are included. A tabulation of data on the project is appended.

Both reports recommend allocating 60 percent of the construction cost of the reservoirs, or \$10,320,000, to irrigation. The Bureau report contemplates repayment of such costs without interest in 40 annual installments of \$258,000. The Chief of Engineers' report proposes a lump-sum payment by the irrigation interests, upon completion of the project of \$5,512,000, which amount, if borrowed by them and retired in 40 years with interest at 3½ percent, would result in equal annual costs to the irrigators. Both reports recommend allocating 40 percent of the construction and of the operation and maintenance costs of the reservoirs to flood control, with such costs to be borne by the Government.

The Chief of Engineers proposes that operation and maintenance of the works be conducted always by the irrigation interests, who are to be reimbursed for the Federal share on account

<sup>1</sup> Initial funds for construction of the *San Luis Valley Project* were authorized under the provisions of the National Industrial Recovery Act of 1933, but later rescinded.

of flood control by a capitalized credit of \$345,000 on the lump-sum irrigation payment. In my opinion the complicated irrigation rights, including the Rio Grande Compact and the potential conflict of irrigation and flood-control operations, make it advisable for the Government to operate and maintain the reservoirs, leaving all other operations in present hands.

Irrigation is the dominant feature of this project. In the circumstances, I believe that this project, if and when undertaken, should be constructed and operated by the Bureau of Reclamation. The project is greatly desired by local interests and would materially improve their economic status. No new lands would be developed. The benefits exceed the annual costs. The project clearly meets all requirements of feasibility and authorization under section 9 of the Reclamation Act of 1939. I recommend that a finding of feasibility, together with the report, be submitted to the President and to the Congress in compliance with that act.

Respectfully,

(Signed) JOHN C. PAGE,  
*Commissioner.*

DEPARTMENT OF THE INTERIOR,  
*Washington, February 1, 1940.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the National Resources Planning Board).*

MY DEAR MR. PRESIDENT: There is transmitted a letter of January 25, 1940, from the Commissioner of Reclamation, submitting a report on the San Luis Valley project on Rio Grande in Colorado, contemplating an expenditure of \$17,465,000 for the Wagon Wheel Gap Reservoir on Rio Grande, two small reservoirs on Conejos River and a minor transmountain diversion, to provide supplemental water and flood control for 400,000 acres of lands already under irrigation. Through consultation and agreement with the Chief of Engineers, representing the Secretary of War, \$6,880,000 of this cost has been allocated to flood control, with no reimbursement contemplated. To irrigation there would be allocated \$10,585,000 to be repaid under the reclamation law in 40 years without interest.

The proposed allocation of costs is proper and equals the estimated cost of the project. The repayment of reimbursable costs can be anticipated with assurance. I find the project desirable, economically and engineeringly feasible, and authorized for con-

struction under the provisions of section 9 of the Reclamation Act of 1939. I therefore recommend its construction thereunder, if and when funds are made available.

Unless you have objections thereto, the letter and report will be transmitted to the Congress, in accordance with the provisions of that law.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
*Washington, March 30, 1940.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: I return herewith the proposed report of the Bureau of Reclamation on a project for flood control and irrigation in the San Luis Valley, on the Rio Grande, in Colorado, which report you transmitted to me with the statement that you deemed the project desirable, economically and engineeringly feasible, and authorized for construction under the provisions of section 9 of the Reclamation Act of 1939.

I have considered the proposed report of the Bureau of Reclamation in connection with a proposed report on the same project prepared by the Corps of Engineers of the War Department in compliance with the Flood Control Act of June 28, 1938. I find that these two reports are in agreement except as to three questions of policy, namely:

(1) Should the Bureau of Reclamation or the Corps of Engineers construct the project?

(2) Should irrigation beneficiaries repay in 40 annual payments or in a lump-sum payment equivalent to the present value of such payments? (Note: The proposal is to charge Irrigation with 60 percent of the cost of the project, or approximately \$10,-320,000.)

(3) Should the Federal Government or the local interests maintain and operate the project after completion?

With respect to these matters, I am of the opinion that, since the project is dominantly an irrigation undertaking, suited to operation and maintenance under the reclamation law, it should be constructed by the Bureau of Reclamation; that the portion of the project cost to be charged to Irrigation should be financed on the basis of the prevailing Federal policy of 40 annual payments by irrigation beneficiaries; and that the project should be maintained

and operated by the Bureau of Reclamation, with water releases to be determined by local responsible interests, and with operation for flood control to be in accordance with regulations prescribed by the Secretary of War.

While it is my desire that legislation initiating the San Luis Valley project, if and when enacted, should be in accord with the views expressed above, you are advised that the enactment of such legislation would not, at this time, be in accord with my program.

It is desired that you arrange to have the report of the Bureau of Reclamation transmitted to Congress on the same day that the report of the Corps of Engineers of the War Department is forwarded, in order that an opportunity may be afforded to have the two reports printed in a single document.

A letter similar to the above has been addressed by me to the Secretary of War.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

DEPARTMENT OF THE INTERIOR,  
*Washington, April 10, 1940.*

Hon. WILLIAM B. BANKHEAD,  
*Speaker of the House of Representatives.*

MY DEAR MR. SPEAKER: I am transmitting herewith the Reclamation report on the San Luis Valley project in Colorado.

In his letter dated January 25, 1940, to me, Commissioner John C. Page, Bureau of Reclamation, said with respect to the project:

The benefits exceed the annual costs. The project clearly meets all requirements of feasibility and authorization under Section 9 of the Reclamation (Project) Act of 1939. I recommend that a finding of feasibility, together with the report, be submitted to the President and to the Congress in compliance with that Act.

My finding of feasibility was included in my letter of February 1, 1940, regarding the project, to the President. This letter stated in part:

The proposed allocation of costs is proper and equals the estimated cost of the project. The repayment of reimbursable costs can be anticipated with assurance. I find the project desirable, economically and engineeringly feasible, and authorized for construction under the provisions of Section 9 of the Reclamation (Project) Act of 1939. I, therefore, recommend its construction thereunder, if and when funds are made available.

The President in his letter to me of March 30, 1940, with reference to a study of the Reclamation report on the San Luis Val-

ley project and a report prepared by the Corps of Engineers, War Department, on the same project, said in part:

I have considered the proposed report of the Bureau of Reclamation in connection with a proposed report on the same project prepared by the Corps of Engineers of the War Department in compliance with the Flood Control Act of June 28, 1938. I find that these two reports are in agreement except as to three questions of policy, namely:

(1) Should the Bureau of Reclamation or the Corps of Engineers construct the project?

(2) Should irrigation beneficiaries repay in forty annual payments or in a lump-sum payment equivalent to the present value of such payments? (Note: The proposal is to charge Irrigation with 60 percent of the cost of the project, or approximately \$10,320,000.)

(3) Should the Federal Government or the local interests maintain and operate the project after completion?

With respect to these matters, I am of the opinion that since the project is dominantly an irrigation undertaking, suited to operation and maintenance under the Reclamation Law, it should be constructed by the Bureau of Reclamation; that the portion of the project cost to be charged to Irrigation should be financed on the basis of the prevailing Federal policy of forty annual payments by irrigation beneficiaries; and that the project should be maintained and operated by the Bureau of Reclamation, with water releases to be determined by local responsible interests, and with operation for flood control to be in accordance with regulations prescribed by the Secretary of War.

Copies of these three letters are enclosed and are a part of the report, the main body of which, separately bound, also is enclosed. These enclosures constitute the report, the findings, and the authorization contemplated in section 9 of the Reclamation Project Act of 1939, on the San Luis Valley project, Colorado.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1941

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1941, and for other purposes. (Act June 18, 1940, 54 Stat. 406, 438, Public Law 640, 76th Cong., 3d sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1941, namely:

\* \* \* \* \*

### GENERAL FUND, CONSTRUCTION

For continuation of construction of the following projects and for administrative expenses in not to exceed the following



amounts, respectively, to be expended from the general fund of the Treasury in the same manner and for the same objects of expenditures as specified for projects included hereinbefore in this act under the caption "Bureau of Reclamation" under the heading "Administrative provisions and limitations," but without regard to the amounts of the limitations therein set forth, to be immediately available, to remain available until expended, and to be reimbursable (except as to the Pine River project, Colorado, and the Colorado River project, Texas) under the Reclamation law:

\* \* \* \* \*

San Luis Valley project, Colorado: For further investigations, exploratory and preparatory work, and commencement of construction in accordance with House Document Numbered 693, Seventy-sixth Congress, third session: *Provided*, That commencement of construction of the Closed Basin Drain feature shall be contingent on (a) a conclusive finding of justification for the drain on the basis of cost and the quantity and quality of water to be secured, and (b) adequate arrangements for maintenance of the drain, \$150,000: *Provided further*, That any works to be constructed by virtue of investigations or surveys resulting from this appropriation, shall be so constructed and operated as not to interfere with the operation of or abrogate any of the terms of the Rio Grande Interstate Compact, and any contracts, permits, or licenses relating to such works entered into by the United States shall provide specifically that all rights thereunder shall be subject to and controlled by the provisions of said Rio Grande Interstate Compact.

MARCH 3, 1949.

The SECRETARY OF THE INTERIOR.

SIR: The San Luis Valley Project in Colorado, including the Conejos Division of that project, was authorized for construction on April 10, 1940, by the Secretary of the Interior on a finding of feasibility made in accordance with provisions of the Reclamation Project Act of 1939. The finding of feasibility, together with related documents, was transmitted to the Congress and printed as House Document No. 693, 76th Congress. The Supplemental Report printed in House Document No. 693 recommended that "Prior to construction of the Conejos unit, further investigations should be made to ascertain the desirability of substituting a

single main-stream reservoir on its lower reaches for the two reservoirs as better regulation will result." The necessary additional investigations were made, and on September 29, 1947, the conclusions drawn from those investigations were reported to you. On October 3, 1947, you approved the construction of the Platoro Reservoir, one of the two reservoirs planned, as the first stage of development in the San Luis Valley Project.

The original authorization for the project provided for the water users to repay 60 percent of the cost and for 40 percent of the cost to be allocated to flood control. The construction cost of this first unit is now estimated at \$4,200,000. Of this amount, 60 percent, or \$2,520,000 is properly allocable to irrigation and should be reimbursable. The water users in the Conejos Water Conservancy District have indicated their willingness to repay the allocation to irrigation, and negotiations for a repayment contract are well along. The remaining part of the cost, \$1,680,000, is properly allocable to flood control, and is non-reimbursable in accordance with the terms of the Reclamation Project Act of 1939. The average flood damages which would be prevented by the Platoro Reservoir are estimated by the Corps of Engineers, Department of the Army as \$57,900 annually. The present worth of the evaluated flood damages prevented, computed as an annuity over a 50 year period at a 3% interest rate, in accordance with the standard practice of the Corps of Engineers, would justify an allocation to flood control of \$1,490,000. In view of the unusually long life of this reservoir, estimated to be in excess of 100 years, an allocation of \$1,680,000 is justifiable.

Consultation with the Chief of Engineers and with the Secretary of the Army in regard to the flood control allocation, as prescribed in Section 9 (b) of the Reclamation Project Act of 1939, indicates that the Department of the Army would not object to the allocation. A copy of a letter to this effect from the Acting Secretary of the Army is attached.

In view of the foregoing, I recommend:

A. That by your approval hereof you make the following supplemental findings with respect to the Conejos Division of the San Luis Valley Project, to wit:

(1) That the part of the estimated cost thereof which can properly be allocated to irrigation and probably be repaid by the water users is \$2,520,000;

(2) That the part of the estimated cost thereof which can properly be allocated to flood control is \$1,680,000; and

B. That you transmit such supplemental findings to the President and the Congress.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved March 7, 1949.

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

UNITED STATES DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington 25, D. C., March 7, 1949.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: The San Luis Valley Project, including the Conejos Division, was authorized for construction on April 10, 1940 by a finding of feasibility by the Secretary of the Interior in accordance with the provisions of the Reclamation Project Act of 1939. This letter constitutes my supplemental finding of feasibility for the Platoro Reservoir as the first unit of the Conejos Division of the San Luis Valley Project, necessitated by the increase in the estimated cost of construction since the original authorization. A copy of a letter from the Commissioner of Reclamation containing information on which these findings are based is attached.

I find that the proposed Platoro Reservoir has engineering feasibility; that the estimated cost of construction of the Platoro Reservoir is \$4,200,000; that \$2,520,000 can properly be allocated to irrigation and can probably be repaid by the water users; and, after consultation with the Secretary of the Army, that \$1,680,000 can properly be allocated to flood control. The total of the foregoing allocations equals the total estimated cost of construction. Consequently, I find, pursuant to the provisions of Section 9 (a) of the Reclamation Project Act of 1939, that the Platoro Reservoir is authorized for construction.

Unless you have objection, these findings will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
*Washington 25, D. C., March 21, 1949.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge receipt of your letter dated March 7, 1949, addressed to the President, and advising that you have made a supplemental finding of feasibility

for the Platoro Reservoir as the first unit of the Conejos Division of the San Luis Valley Project, Colorado. You state that this supplemental finding of feasibility was necessitated by the increase in the estimated cost of construction since the original authorization. A copy of a letter dated March 3, 1949, from the Commissioner of Reclamation, containing information on which these findings are based was enclosed, together with a letter dated February 14, 1949, from the Acting Secretary of the Army, commenting on the proposed allocation of cost to flood control.

It is noted that the current estimated cost of construction of the proposed Platoro Reservoir is \$4,200,000; that \$2,520,000 has been allocated to irrigation; and that \$1,680,000 has been allocated to flood control, after consultation with the Secretary of the Army. It is further noted that in his letter dated February 14, 1949, the Acting Secretary of the Army states that the Department of the Army would not object to this allocation to flood control.

In accordance with the authority delegated to the Director of the Bureau of the Budget in the letter dated July 2, 1946, from the President, the Director has authorized me to advise you that there would be no objection to the submission of the report to the Congress.

Sincerely yours,

(Signed) W. McCANDLESS,  
*Assistant Director, Estimates.*

OFFICE OF THE SECRETARY,  
*Washington 25, D. C., March 31, 1949.*

Hon. ALBEN W. BARKLEY,  
*President of the Senate.*

MY DEAR MR. VICE-PRESIDENT: In accordance with the provisions of Section 9 of the Reclamation Project Act of 1939, I submit herewith my supplemental finding of feasibility for the Platoro Reservoir as the first unit of the Conejos Division of the San Luis Valley Reclamation Project, Colorado.

My findings are contained in the attached letter, dated March 7, 1949, addressed to the President and incorporated herein by reference.

The Assistant Director, Bureau of the Budget, has advised that there would be no objection to the submission of these findings to the Congress. A copy of his letter is attached.

Sincerely yours,

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

OFFICE OF THE SECRETARY,  
*Washington 25, D. C., March 31, 1949.*

Honorable SAM RAYBURN,  
*Speaker of the House of Representatives.*

MY DEAR MR. SPEAKER: In accordance with the provisions of Section 9 of the Reclamation Project Act of 1939, I submit herewith my supplemental finding of feasibility for the Platoro Reservoir as the first unit of the Conejos Division of the San Luis Valley Reclamation Project, Colorado.

My findings are contained in the attached letter, dated March 7, 1949, addressed to the President and incorporated herein by reference.

The Assistant Director, Bureau of the Budget, has advised that there would be no objection to the submission of these findings to the Congress. A copy of his letter is attached.

Sincerely yours,

(Signed) OSCAR L. CHAPMAN,  
*Acting Secretary of the Interior.*

# SANPETE PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, November 1, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*) indicated that Section 4 of the Act of June 25, 1910 (295 U. S., 174) is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Sanpete project, Utah, is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924 (43 Stat., 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under dates of November 29, 1933, and May 22, 1935, I approved allotments of \$300,000.00 and \$75,000.00 respectively for the construction of the Sanpete project, which consists of the Ephraim Division and the Spring City Division, all of which is still available or has been expended toward the construction of both divisions. The water to be developed by the two divisions will

<sup>1</sup> The *Sanpete Project* was initiated under the provisions of the National Industrial Recovery Act of 1933.

be used for the irrigation of privately owned lands already under irrigation in the vicinity of Ephraim, Utah, in the case of the Ephraim Division and near Spring City, Utah, in the case of the Spring City Division.

The lands of the Ephraim Division are under the Ephraim Irrigation Company system, with which company a contract was entered into under date of July 11, 1934, by the United States covering the repayment of the construction cost of this division and construction work is now in progress thereon. The lands of the Spring City Division are under the irrigation system of the Horse-shoe Irrigation Company with which a contract was entered into on May 31, 1935, by the United States for the repayment of the construction cost of this division. Construction work, however, has not yet started on the main feature of the Spring City Division, namely, the Spring City Tunnel, as the undertaking of this construction is contingent upon there being sufficient funds left after constructing the Ephraim Division.

The lands of both divisions were put under irrigation during the early settlement of Utah but due to an inadequate water supply water shortages are experienced on these lands every year. It is therefore the purpose of the project to furnish an additional water supply for these private lands in order that water shortages may be reduced as far as possible.

The furnishing of an additional water supply for the land of the Ephraim Division will be accomplished by the construction of the Ephraim Tunnel, 7200 feet in length, and of two short feeder canals by which surplus waters will be diverted from the Colorado River watershed through a mountain divide to the lands of the division, which are in the Great Salt Lake Basin. The capacity of the Ephraim Tunnel and feeder canals is about 100 second feet.

The furnishing of an additional water supply for the lands of the Spring City Division will also be accomplished by a tunnel 5000 feet in length and by two short feeder canals by which surplus water will also be diverted from the Colorado River watershed through the same mountain divide to the lands of the Spring City Division, which are also in the Great Salt Lake Basin. The capacity of the Spring City tunnel and the two feeder canals is about 90 second feet.

Both divisions of the project are old established communities located near an extensive sheep and cattle range but the carrying on of the sheep and cattle industry requires the raising of feed as the cattle and sheep have to be fed during the winter months and the bringing in of an additional water supply which is so badly needed (and which is the purpose of the project) will create a better balance between range and farm lands and thereby make for a more permanent and successful agriculture.

Studies and investigations made by the Bureau of Reclamation indicate that while it is not possible to divert a large amount of water from the Colorado River watershed to the project lands a sufficient supply is available for diversion to warrant the construction of the two tunnels and the feeder canals, that the con-

struction of these works is feasible from an engineering standpoint, that the Ephraim Division can be completed within the allotment but that the construction of the Spring City Division is dependent upon the amount of funds left from the total allotment of \$375,000.00 after the Ephraim Division has been constructed.

I find that the project is feasible, that the land watered thereby is adaptable for actual settlement and farm homes, that the lands are badly in need of an additional water supply, that the continued existence of the communities depends upon the furnishing of an additional water supply as contemplated by the project, that the land prices in these old settled Mormon communities are not likely to be inflated as a result of development herein recommended, and that the project will probably return its cost to the United States.

I recommend that the project consisting of the Ephraim Division (consisting of the Ephraim Tunnel and two feeder canals) and the Spring City Division (consisting of the Spring City Tunnel and two feeder canals), the Ephraim Division of which is already under construction, be approved, that any steps or action heretofore taken toward the construction of the same be ratified, and that authority be issued to this Department to proceed with the work and to make contracts and take any necessary action to construct and complete the Ephraim Division of the Sanpete project, and also to construct and complete the Spring City Division as funds become available therefor.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*



# SANTA BARBARA PROJECT

BUREAU OF RECLAMATION,  
*Washington, March 2, 1948.*

The SECRETARY OF THE INTERIOR.

SIR: Herewith is my report on the Cachuma unit of the Santa Barbara County project, California.

In your behalf I submitted copies of the report, which you adopted on January 7, 1948, as your proposed report, to the Secretary of the Army and to the State of California in accordance with the Flood Control Act of 1944 (58 Stat. 887), and to the head of the agency of the State of California exercising administration over the fish and wildlife resources of the State in accordance with the provisions of Public Law 732, Seventy-ninth Congress (60 Stat. 1080).

Copies of the replies are attached. As a result of these reviews, the State of California recommends, among other things, immediate authorization of the project, and that funds be appropriated in this session of the Congress for commencement of construction. The Secretary of the Army states that the proposed project would not conflict with contemplated plans of the Corps of Engineers.

Accordingly, it is recommended that you adopt your proposed report of January 7, 1948, as your report; that you find the Cachuma unit of the Santa Barbara County project to be feasible in accordance with the provisions of section 9 (a) of the Reclamation Project Act of 1939; and that you transmit it, together with the attached comments, to the President and subsequently to the Congress.

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved and adopted March 4, 1948.

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

OFFICE OF THE SECRETARY,  
*Washington, March 4, 1948.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: My report on the Cachuma unit of the Santa Barbara County project, California, is enclosed, pursuant to the provisions of section 9 (a) of the Reclamation Project Act of 1939.

Increased population, with consequent overdemand upon the limited ground-water supplies, coupled with gradual siltation of the major surface water supply reservoir now places the city of Santa Barbara and adjacent urban and south coast agricultural areas in an extremely vulnerable position. The drought of the past 2 months has emphasized the seriousness of the situation. A critical or extended drought could cause hardship of disastrous proportions. The enclosed report, which recommends authorization of the Cachuma unit of the Santa Barbara County project is designed to remedy this situation and has the added advantage that it will produce an early water supply from the tunnel excavations that can be utilized even before the new storage reservoir is completed.

The Commissioner of Reclamation, acting on my behalf, has obtained the written views of the State of California, and of the Secretary of the Army in accordance with the requirements of the Flood Control Act of 1944. Copies of the letters expressing these views are attached. The State of California includes in its views the recommendation that the project be authorized immediately and that funds be appropriated this session to initiate construction. The Secretary of the Army advises that the proposed project will not conflict with contemplated plans of the Corps of Engineers. The recommendations of the director of natural resources of the State of California, secured in accordance with the requirements of Public Law 732, Seventy-ninth Congress, are included with the comments of the State of California, and are also favorable.

I find that the proposed construction has engineering feasibility; that the estimated cost of the proposed construction is \$32,310,000; that the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users is \$20,164,000; and that the part of the estimated cost which can properly be allocated to municipal water supply or other miscellaneous purposes and probably be returned to the United States is \$12,146,000. The total of the foregoing repayable and returnable allocations equals the total estimated cost of construction. Consequently, I find, pursuant to the provisions of section 9 (a) of the Reclamation Project Act of 1939, that the Cachuma unit of the Santa Barbara County project is authorized for construction.

In making these findings, I am fully cognizant of the suggestion of the State of California with respect to the possibility of increased costs which may or may not eventuate. Any increase or decrease in costs will, of course, be reflected in extensions or reductions, as the case may be, of the period during which construction costs are returned by collections from irrigation, municipal and other water-supply users. If experience should indicate costs exceeding the estimates contained in this report, the water rates to be paid by the water users should remain the same as herein proposed until the actual cost is repaid. The proportion of total costs returned by the irrigation water users and the municipal and other water users, respectively, would remain approximately the same.

Unless you have objection, the report and the other documents enclosed will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
*Washington, March 24, 1948.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge receipt of your letter dated March 4, 1948, enclosing a copy of your proposed report on the Cachuma Unit of the Santa Barbara County project and advising that pursuant to the provisions of section 9 (a) of the Reclamation Project Act of 1939, you have found it feasible and have authorized it for construction.

I note that the proposed repayment plan provides, on the basis of the estimates contained in the report, for the return of the cost of the project in about 50 years. Your letter states that any increase or decrease in construction costs will not be covered by adjustments in water rates but will be reflected in extensions or reductions, as the case may be, of the period during which construction costs are returned by collections from irrigation, municipal and other water-supply users. It has been my understanding that Reclamation law has generally been interpreted to require repayment of the cost of construction without interest in 40 years plus the 10-year development period where applicable. In those cases where this is impossible but other considerations appear to justify the project regardless, Congress has from time

to time authorized their construction with provisions for longer repayment periods. I have also been advised that this is the first project found feasible on the basis of repayments being obtained through outright sale of water under the provisions of sections 9 (c) and (e) of the Reclamation Project Act of 1939. In view of the above it appears to me that we should move cautiously in any action which might set a precedent for approving projects involving a departure from the customary 40-year repayment period policy contemplated under existing Reclamation laws. However, since the subject report involves an improvement of outstanding merit, it would appear to justify its authorization as an exceptional case.

I also note that the submission contains no comments of the Department of Agriculture and the Federal Power Commission on the proposed plan of improvement. In view of the fact that the Department of Agriculture had raised questions on the previous report, this office has inquired of that agency as to its views on the revised report. Representatives of the Department of Agriculture stated that while they have not completed their detailed review and while they may raise minor questions on certain items, there would be no objection to the submission of the report to the Congress in its present form. The Federal Power Commission advises that the comments made on the original report would still apply and that it would raise no questions on the revised report.

In accordance with the authority delegated to me in the letter from the President dated July 2, 1946, you are advised that there would be no objection to the submission of the report to the Congress. However, it would be appreciated if you would include a copy of this letter with your submission.

Sincerely yours,

(Signed) FRANK PACE, Jr.,  
*Assistant Director.*

OFFICE OF THE SECRETARY,  
*Washington, March 24, 1948.*

Hon. JOSEPH W. MARTIN, Jr.,  
*Speaker of the House of Representatives.*

MY DEAR MR. SPEAKER: In accordance with the requirements of section 9 (a) of the Reclamation Project Act of 1939, I submit herewith my report and findings on the Cachuma unit of the Santa Barbara County project, California. The Cachuma unit, consisting

of Cachuma Reservoir, Tecolote transmountain diversion tunnel, and appurtenant works, is urgently needed to supply water for the irrigation of lands and for municipal use in the south coast area of Santa Barbara County. These works would alleviate to some extent the critical water shortage deriving from the current drought in California and would provide ample protection against future droughts for many years to come.

I find that the proposed construction has engineering feasibility; that the estimated cost of the proposed construction is \$32,310,000; that the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users is \$20,164,000; and that the part of the estimated cost which can properly be allocated to municipal water supply and probably be returned to the United States is \$12,146,000. The total of the foregoing repayable and returnable allocations equals the total estimated cost of construction.

Pursuant to the procedures contemplated in section 1 of the Flood Control Act of 1944 (58 Stat. 887), the report has been transmitted to the Governor of the State of California and to the Secretary of the Army. Their views and recommendations are incorporated in the enclosed documents.

The requirements of section 9 (a) of the Reclamation Project Act of 1939 and of section 1 of the Flood Control Act of 1944 having been met, I find that the Cachuma unit of the Santa Barbara County project is authorized for construction in accordance with the Federal reclamation laws.

In making these findings, I have taken into account the possibility of increased costs which may or may not eventuate: Any increase or decrease in costs will, of course, be reflected in extensions or reductions, as the case may be, of the period during which construction costs are returned by collections from irrigation, municipal and other water-supply users. If experience should indicate costs exceeding the estimates contained in this report, the water rates to be paid by the water users should remain the same as herein proposed until the actual cost is repaid. The proportion of total costs returned by the irrigation water users and the municipal and other water users, respectively, would remain approximately the same.

On March 4 this report was submitted to the President. The Director of the Bureau of the Budget has advised that the project is outstanding and appears to justify authorization, and that there would be no objection to the submission of this report to the Congress. His letter is attached.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1949

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1949, and for other purposes. (Act June 29, 1948, 62, Stat. 1112, Public Law 841, 80th Cong., 2d sess)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1949, namely:

\* \* \* \* \*

## CONSTRUCTION

Construction: For construction and continuation of construction of the following projects in not to exceed the following amounts, all to be reimbursable (except as otherwise provided by law) under the reclamation law, to remain available until expended for carrying out projects (including the construction of transmission lines) previously or herein authorized by Congress:

\* \* \* \* \*

Santa Barbara County project, California, Cachuma Unit, \$1,000,000, and in addition thereto the Commissioner of Reclamation is authorized to enter into contracts in an amount not in excess of \$1,600,000;

# SCOFIELD PROJECT

OFFICE OF THE SECRETARY,  
*Washington, June 11, 1943.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: An investigation has been made of the Scofield project involving the replacement of the existing Scofield Dam on Fish Creek in Carbon County, Utah, and pursuant to the authority of the Act of August 11, 1939 (53 Stat. 1418), as amended, I submit this report on the proposed project and request your approval of the findings, recommendations, and certifications contained herein.

## PROJECT PURPOSES

It is proposed to replace the existing deteriorated Scofield Dam in order to avert a total collapse of that structure. Failure of the dam would eliminate storage which is vital for the irrigation of 12,500 acres of land in the Price River Valley. In addition to stabilizing the water supply for the irrigated lands, the new reservoir would form the basis for providing supplemental water to the Gooseberry project when that project is authorized. The Gooseberry project has been investigated by the Bureau of Reclamation, and a recommendation will be made for its construction, probably after the war. It is expected that opportunities for permanent settlement in addition to rehabilitation of existing families will be offered to farm families in both areas.

The greatest immediate importance is the fact that if the weakened dam fails, the waters released would damage severely the towns, highways, coal mines, and railroad, telegraph, and telephone systems which lie in the narrow confines of the Price River Canyon. It is feared that the outlet works and spillway, because of their deteriorated condition, may become blocked during a period of heavy inflow. In that case waters which would flow naturally down the valley causing some damage, would be retarded and impounded, before the dam fails, to such an extent

that the magnitude of the flood below the dam after failure would be many times that of the flood entering the reservoir. Any disruption of the services of these mines, railroads, and communication systems at the present time would be serious and of national concern as all are playing vital roles in the prosecution of the war. The Chief of Engineers, United States Army, has considered the flood damage aspects and his views are expressed in the attached letter from the Secretary of War.

### THE PLAN

The new Scofield Dam, which is proposed for construction just below the existing unsafe structure, would, in addition to alleviating a critical condition, provide about 73,000 acre feet of storage. Of this capacity, 65,000 acre feet would be available for irrigation needs and 8,000 acre feet would be dead storage for the propagation and maintenance of fish life. By storing flood waters in this reservoir and through exchange agreements, part of the surplus flow of Price River could be retained in a proposed upstream reservoir to provide a supplementary supply for approximately 30,000 acres of land in the Gooseberry project.

Changes in these general plans may be found necessary, but it is expected that any changes would be of a minor nature and would neither alter the general objectives of the project, nor result in material departures from the present findings, predicated on the present plan of the project.

### PARTICIPATION OF FEDERAL AGENCIES

It is proposed that the Bureau of Reclamation construct the new dam. Subject to change, the present plan is that the Bureau also would operate and maintain Scofield Dam and Reservoir with funds supplied by or through a conservancy district which has been organized to assume the repayment obligation to the United States. The Bureau would negotiate the necessary contracts for repayment of reimbursable funds spent in the construction of the reservoir.

The Department of Agriculture, through the War Food Administrator, has transmitted a letter which is attached, indicating approval of the project. From this letter it will be noted that the major participation by the Department of Agriculture would be to rehabilitate the present distribution system of the Price River Valley lands, and to acquire and develop new lands which may be brought under irrigation as a replacement for waterlogged and submarginal areas now being used.

Before the war, assistance was provided on similar projects by the Work Projects Administration and the Civilian Conservation Corps through the contribution of labor, and small amounts of material, supplies, and equipment. Since such assistance is no longer available, the present plan is to use Government forces,



supplemented by any type of public labor which may be available, such as that furnished by the Selective Service System.

### PARTICIPATION BY NONFEDERAL AGENCIES

The Commissioner of the Utah Fish and Game Department has expressed a desire to use the proposed reservoir for wildlife and recreational purposes, and has indicated that his Department would contribute \$31,000 toward construction of the Scofield Dam.

The Price River interests have indicated that they would repay the "reimbursable construction costs" expended in the new dam and reservoir, exclusive of the portion to be repaid by the Utah Fish and Game Department, through a conservancy district which has been organized. The water users benefited by the work to be undertaken by the Department of Agriculture would be required to assume the repayment of reimbursable money expended in that work in accordance with section 5 of the Act of October 14, 1940.

It is planned to accept any other aid or financial assistance which may be offered by the local interests.

### ESTIMATED COST AND FINANCING PROCEDURE

It is estimated that the Bureau of Reclamation would require \$720,000 to build Scofield Dam of which \$393,000 would be allocated to flood control. Benefited interests are expected to repay \$247,000 and an additional \$80,000 would probably be credited to the project upon completion, through equipment transfer and salvage values. Alien, Civilian Public Service, or similar labor would be used if available. Expenses amounting to an estimated \$326,000 incurred by the Department of Agriculture would be defrayed by the repayment of \$197,000 by project interests, by an estimated salvage and equipment transfer value of \$18,000, and by contributions amounting to \$111,000 in the form of alien, Civilian Public Service, or similar labor, and whatever materials and equipment were furnished by the Government for the use of such labor camps. Tabulations showing the breakdown of the estimated costs and financing procedure are given at the end of this letter.

The obligation of the Price River interests for construction of the dam would vary, depending upon the extent of development of the proposed Gooseberry irrigation project and its participation in the benefits of the Scofield project. The following tabulation shows a plan which has been indicated to be acceptable to all concerned:

	<i>With Gooseberry interests participating</i>	<i>Without Gooseberry interests participating</i>
Gooseberry interests .....	\$116,000	None
Price River interests.....	100,000	\$216,000
Utah Fish and Game Department.....	31,000	31,000
<b>Total .....</b>	<b>247,000</b>	<b>247,000</b>

## SIZE OF FARM UNITS

The determination of the size of farm units, required by the governing statute, cannot be made until studies of the matter are completed. I plan to make the determination and settle the matter satisfactorily prior to commencing any major construction work.

## FINDINGS, CERTIFICATIONS, AND RECOMMENDATIONS

Based upon the report covering the engineering and economic aspects of the work proposed to be accomplished by the Bureau of Reclamation, I find and certify that:

- (1) The proposed project has engineering feasibility.
- (2) The total estimated cost is \$640,000.
- (3) The estimated cost which properly can be allocated to irrigation is \$216,000.
- (4) The water users and related interests, through the existing conservancy district (without or with Gooseberry participation), probably could repay \$216,000 of the costs allocated to irrigation in accordance with the requirements of section 4 of the Act of October 14, 1940.
- (5) The estimated cost allocated to wildlife (miscellaneous water supply) is \$31,000, which would be returned to the United States through the contribution by the Utah Fish and Game Department.
- (6) No part of the estimated costs properly could be allocated to the irrigation of Indian trust and tribal lands.
- (7) The estimated cost which properly could be allocated to flood control is \$393,000.

Many factors, such as the precarious condition of the existing dam, the inadequacy of a temporary spillway recently constructed, the great value of railroad, mining, highway, and agricultural property which would be destroyed, and the loss of life which might occur if sudden rains or melting snows should cause a sudden heavy inflow to the present reservoir, lead me to urge strongly the immediate replacement of the Scofield Dam. However, it may be that equipment, materials, supplies, and labor needed for this work are of such extreme importance to our own armed forces and those of the United Nations, if this war is to be expeditiously concluded, that it may be undesirable to commence construction until conditions change.

Consequently, it is planned, if you approve of this project, to settle as soon as possible those matters relating to land acquisitions, water rights, and the repayment contract. In the meantime the project is being submitted to the War Production Board for its approval of the procurement and incorporation of the materials that would be needed for the construction.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE.

Approved June 24, 1943.

(Signed) FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,  
*Washington, June 24, 1943.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge receipt of your letter of June 11, 1943, together with supporting data addressed to me through the Bureau of the Budget requesting authorization for the construction of a new dam to replace the existing Scofield Dam in Carbon County, Utah, under the terms of the Water Conservation and Utilization Act of August 11, 1939, as amended, at a total cost of \$640,000.

Due to the apparent urgency as stated by you, the Secretary of War, and the War Food Administrator, I herewith approve the construction of this project under the terms and conditions recommended.

In keeping with your suggestion I have also addressed a letter to Mr. Donald M. Nelson, Chairman of the War Production Board, requesting his cooperation relating to preference ratings for the necessary materials and supplies in order to expedite construction during the short working season of this location.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

# SHOSHONE PROJECT<sup>1</sup>

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Washington, February 1, 1904.*

TO THE CHIEF ENGINEER: The undersigned have examined the maps and estimates on the irrigation project in the vicinity of Cody, Wyoming, and find that it is feasible to store water and construct canals for about 90,000 acres of land, and furnish the same with an ample supply of water at a cost not greater than the price at which the land would be readily taken by settlers. Many details are still to be investigated, and many modifications in the present project will probably be found advisable, but we are of the opinion that the project is feasible, and recommend it for early construction.

(Signed) A. P. DAVIS,  
J. H. QUINTON,  
L. H. TAYLOR,  
J. B. LIPPINCOTT,  
*Board of Engineers.*

UNITED STATES GEOLOGICAL SURVEY,  
*Washington, February 5, 1904.*

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: On January 26, 1903, the Board of Land Commissioners of the State of Wyoming offered to turn over to the Reclamation Service the lands segregated under the Carey Act and known as the "Cody and Salisbury Tract." In accordance with this and

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<sup>1</sup> *Heart Mountain Division* was initiated under the provisions of the Emergency Relief Act of 1935.

subsequent correspondence, surveys were made during 1903 and estimates prepared during the following winter, showing that approximately 90,000 acres of land can be irrigated on the north side of Shoshone River, in Bighorn County, Wyoming, by the construction of a dam in Shoshone River, and a canal heading in the canyon above the town of Cody.

The preliminary estimates, prepared by Mr. Jeremiah Ahern, have been submitted to a board of consulting engineers consisting of Messrs. Arthur P. Davis, J. H. Quinton, L. H. Taylor, and J. B. Lippincott. The report of this committee is as follows:

The undersigned have examined the maps and estimates on the irrigation project in the vicinity of Cody, Wyoming, and find that it is feasible to store water and construct canals for about 90,000 acres of land, and furnish the same with an ample supply of water at a cost not greater than the price at which the land would be readily taken by settlers. Many details are still to be investigated, and many modifications in the present project will probably be found advisable, but we are of the opinion that the project is feasible, and recommend it for early construction.

Additional details of structures are to be worked out during the remainder of the winter, and during the early spring the project will be examined on the ground by consulting engineers, to determine upon additional facts preliminary to drawing up the plans, specifications, and form of advertisement. It is, however, desirable to take some definite action in the matter, as the people of Wyoming have expressed a desire to learn definitely whether this work can probably be taken up under the reclamation law.

The questions as to title to this tract of land and the attached water rights have, as suggested by the late Governor De Forest Richards, been held in abeyance, pending consideration of the project. It now appears that the present Governor has some doubts in regard to the legal situation, and before proceeding further it will be necessary to obtain definite transference of rights to land and water. In order to facilitate prompt action, I respectfully make the following recommendations:

#### RECOMMENDATION

That you give general approval to the construction of the Cody Project, under the Reclamation Fund, provided that satisfactory rights to land and water can be secured, and provided that further consideration of details on the ground, by consulting engineers, results in favorable reports.

That the sum of \$2,250,000, or so much thereof as may be necessary, be tentatively set aside for use in construction, subject to the conditions above noted.

That authority be granted to the Chief Engineer of the Reclamation Service to negotiate with the Board of Land Commissioners of the State of Wyoming for the full transference of necessary rights.

That upon satisfactory and complete transference, a further

report be received by you, to be based upon the considerations on the ground of some of the alternatives not yet determined upon.

In short, what is now desired, is a formal expression of willingness to proceed with the project, and one upon which to base definite negotiations with the State authorities of Wyoming.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

Approved.

(Signed) E. A. HITCHCOCK,  
*Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, February 10, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of the 5th instant to the Department you reported in the matter of the proposed Cody Project, Wyoming, under the Reclamation act of June 17, 1902—32 Stat., 388.

You stated therein that the Board of Land Commissioners of the State of Wyoming have offered to turn over to the Reclamation Service the lands segregated under the "Carey" act and known as the "Cody and Salisbury tract," and that as the result of investigations and surveys it appears that, approximately 90,000 acres of land can be irrigated on the north side of Shoshone River in Bighorn County, Wyoming, by the construction of a dam in Shoshone River, and a canal heading in the canyon above the town of Cody.

It appears from the facts you have related that the project is a feasible one and that the cost of storing water and constructing canals for the lands proposed to be irrigated and furnishing an ample supply of water will not be greater than the price at which the lands can be readily sold to settlers.

You have accordingly recommended as follows:

First: That I give general approval to the construction of the Cody Project, under the Reclamation Fund, provided that satisfactory rights to land and water can be secured, and provided that further consideration of details on the ground, by consulting engineers, results in favorable reports.

Second: That the sum of \$2,250,000, or so much thereof as may be necessary be tentatively set aside for use in construction, subject to the conditions above stated.

Third: That authority be granted to the Chief Engineer of the

Reclamation Service to negotiate with the Board of Land Commissioners of the State of Wyoming for the full transference of necessary rights.

Fourth: That upon satisfactory and complete transference, a further report be received by me, to be based on the considerations on the ground of some of the alternatives not yet determined on.

On consideration of the subject matter of your letter, of your recommendations above set forth, and of your stated desire for a formal expression of willingness to proceed with the project, your recommendations are all approved and the sum of \$2,250,000, or so much thereof as may be necessary, is hereby set aside from the fund provided by the act mentioned, tentatively, for use in construction under the conditions specified and you are hereby authorized to take such further action as may be essential to carry the recommendations into effect.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

BUREAU OF RECLAMATION,  
*Washington, March 28, 1945.*

The SECRETARY OF THE INTERIOR.

SIR: A critical electric power shortage exists throughout Wyoming, and particularly in northern Wyoming. This area, which produces food for the prosecution of the war, is also an oil-producing center of increasing importance. The Bureau of Reclamation's hydroelectric plants are the principal suppliers of electric power and energy for the entire area. Generating facilities in the area are at present inadequate to meet fully the power demand. With continued expansion of oil-drilling activities, the demand on the Bureau of Reclamation's plants for power will increase. The power situation in the area became acute when in November of last year there was a substantial reduction in power output at the Shoshone power plant caused by a rock slide in the Shoshone Reservoir. Although steps have been taken to clear away debris from the Shoshone power plant intake works, a similar slide can occur at any time.

In view of the foregoing, it is highly important to the economic life of the northern Wyoming area that additional sources of power be developed at the earliest possible moment. The development of power at the Heart Mountain site on the Shoshone Fed-

eral reclamation project is the most rapid means of furnishing an additional power supply for the area.

The Heart Mountain power development, as described in the attached report, consists of a 5,000-kilowatt hydroelectric plant making use of power water which would be available from the Shoshone Canyon conduit. It would utilize a head of approximately 265 feet. The construction of this plant, at a cost of \$900,000, would add 5,000 kilowatts capacity to the system at a point where it is most needed. The revenue from the sale of the additional amount of energy, as shown on the financial study of the report, would pay the annual expenses, amortize the power investment over 16 years of operation, and, in addition, pay a fair share of the cost of the conduit as a rental charge for its use in conveying the water supply to the power plant. In view of the fact that the conduit was constructed as an irrigation feature of the Heart Mountain and Oregon Basin divisions of the Shoshone project, and that its entire capacity, except for a small winter flow, will be required for irrigation purposes when the Oregon Basin division is ultimately developed and power will not be able to rely firmly on its use thereafter, no allocation of any part of the cost of the conduit can equitably be made to power. The rental charge fixed is based on the proportionate use of capacity for power. During the period before the Oregon Basin is developed for irrigation (estimated to be at least 15 years following the end of the war), the rental charge will be \$6,933 annually, based upon the use of 260 cubic feet per second of capacity throughout the year. Thereafter, as the Oregon Basin is developed, the use will drop to 200 cubic feet per second, which use will occur principally during the non-irrigation season, resulting in a rental charge of \$3,555 annually. If, as is estimated, the Oregon Basin is not developed for 15 years after the war, the Heart Mountain power development will have paid \$230,969 rental for use of the Shoshone Canyon conduit at the end of 50 years' operation of the power plant. This will be a material contribution toward repayment of its entire construction cost of approximately \$1,600,000.

The Heart Mountain power plant would thus, as an added power feature of the Shoshone project, add 5,000 kilowatts of peaking or reserve capacity to the power system at a most favorable point, help relieve a critical power situation at the earliest possible time, and financially contribute to the cost of the Shoshone Canyon conduit. In addition, it would advance development in a region which is now handicapped by lack of power and provide some assistance in future development. It would not retard nor change the development of other projects, as these will be needed as soon as irrigation development schedules require such projects.

The benefits to be derived from the construction of the Heart Mountain power development considerably exceed the annual costs, and the proposed project clearly meets all the requirements of the Reclamation Act of 1939. I recommend, therefore, that you find the project feasible, that you adopt this report as your proposed report on the Heart Mountain power development, and that you authorize me, in your behalf, to transmit copies of this letter



and of the attached proposed report to the affected States and to the Secretary of War in accordance with the procedure contemplated by section 1 of the Flood Control Act (Public 534, 78th Cong., 2d sess.). Upon clearance with the affected States and with the Secretary of War, copies of the report, together with the comments, if any, of the affected States and of the Secretary of War, will be submitted for your transmittal to the President and, subsequently, to the Congress.

Respectfully,

(Signed) H. W. BASHORE,  
*Commissioner.*

Approved April 9, 1945.

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

BUREAU OF RECLAMATION,  
*Washington, June 9, 1945.*

The SECRETARY OF THE INTERIOR.

SIR: On April 9, you approved my letter to you of March 28, copy attached, transmitting for your approval as your proposed report, a report on the Heart Mountain power development, Shoshone Federal reclamation project, Wyoming, and recommending that you find construction of the proposed development feasible, pursuant to section 9 (a) of the Reclamation Project Act of 1939.

By your approval, you also authorized me, in your behalf, to transmit your proposed report to the Governor of Wyoming and to the Secretary of War with a request to each for their written views and recommendations, pursuant to section 1 of the Flood Control Act of 1944. The written views and recommendations of the Governor of Wyoming and of the Secretary of War have now been received and are favorable to the development. Copies of their replies are attached. Pursuant to the procedure of the Federal Inter-Agency River Basin Committee, I have also obtained the written views of the other constituent agencies represented thereon. The comments of these other agencies also are favorable to the proposed development, and copies of their comments are attached.

Accordingly, it is recommended that you adopt the proposed report as your report on the Heart Mountain power development, pursuant to the Reclamation Project Act of 1939. It is further recommended that you transmit this report to the President, and subsequently to the Congress, together with the findings you are

required to make pursuant to section 9 (a) of that act, and the comments referred to above.

Respectfully,

(Signed) H. W. BASHORE,  
*Commissioner.*

OFFICE OF THE SECRETARY,  
*Washington, June 19, 1945.*

THE PRESIDENT,  
*The White House,*  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: There is enclosed a letter to me, dated June 9, 1945, from the Commissioner of the Bureau of Reclamation, submitting to me a report on the Heart Mountain power development, Shoshone Federal reclamation project, Wyoming. I have approved and adopted that report and transmit it to you, pursuant to section 9 (a) of the Reclamation Project Act of 1939.

The proposed plan contemplates construction of the Heart Mountain power plant at a site adjacent to the Shoshone River in northern Wyoming, about 3 miles below the existing Shoshone Dam. The power plant, which would constitute a new supplemental work on the existing Shoshone project, would have a capacity of 5,000 kilowatts and utilize a head of approximately 265 feet.

The enclosed report demonstrates in detail that revenues from the sale of power produced at the proposed plant would be sufficient to pay the annual expenses of operation and maintenance, and to amortize the entire cost of construction of the plant, \$900,000, at the end of 16 years of operation. The entire construction cost is allocated to power, inasmuch as the proposed plant would not be used for irrigation purposes. Hence, no part of the estimated construction cost is allocated to irrigation, or to municipal water supply or other miscellaneous purposes. The report also shows that construction of the plant would add 5,000 kilowatts of capacity to the Bureau of Reclamation's power system at a point where, and at a time when, it is most urgently needed. Construction would be completed within a year from the time funds become available.

I find that the proposed plant is feasible from an engineering standpoint, that it will be economically beneficial, and that repayment of all costs can be anticipated with assurance. It is consequently authorized for construction under the provisions of sec-

tion 9 (a) of the Reclamation Project Act of 1939, and I recommend that its construction be started as soon as funds are made available therefor.

In accordance with the procedure contemplated by section 1 of the Flood Control Act of 1944, the enclosed report has been transmitted to the Governor of Wyoming and to the Secretary of War, and their written views have been obtained. In accordance with the procedure of the Federal Inter-Agency River Basin Committee, the written views of the Chief of Engineers of the United States Army, the Federal Power Commission, and the Department of Agriculture have also been obtained. Copies of these written views are attached to the letter from the Commissioner of Reclamation.

Construction of the proposed plant is urgently needed in view of the critical electric-power shortage which now exists throughout Wyoming and particularly in northern Wyoming. This area is an oil-producing center of considerable and increasing importance and also produces food, both of which are important in the prosecution of the war. The principal suppliers of electric energy in the area are the Bureau of Reclamation's hydroelectric plants. Generating facilities in the area are inadequate to meet fully the power demand, even though as much power as possible is being brought in from adjacent territory. Rapid expansion of oil-drilling activities will increase the demands on the already inadequate power supply. A rock slide at the Shoshone Reservoir in November of 1944 caused a reduction in the power output at the Shoshone power plant of the Bureau of Reclamation and thus made the power-supply situation even more acute. Although steps have been taken to clear debris away from the intake works of this power plant, a similar slide can occur at any time.

Unless you have an objection, the report and the other documents enclosed will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

THE WHITE HOUSE,  
*Washington, July 24, 1945.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: I have received your letter of June 19, 1945, transmitting the report of the Bureau of Reclamation on the Heart Mountain power development, Shoshone Federal

reclamation project, Wyoming. In your letter, you find that the project is feasible from both an economic and an engineering standpoint, and that it is consequently authorized for construction under the provisions of section 9 (a) of the Reclamation Project Act of 1939.

As you know, construction of Federal public works during the war has been restricted to projects needed for the war program or necessary to maintain essential civilian services. Accordingly, you may submit this report to the Congress with the understanding that approval of any estimate of appropriation for early construction will be based upon an adequate show of need either for the war program or for maintenance of essential civilian services.

Sincerely yours,

(Signed) HARRY S. TRUMAN.

OFFICE OF THE SECRETARY,  
*Washington, August 31, 1945.*

Hon. SAM RAYBURN,  
*Speaker of the House.*

MY DEAR MR. SPEAKER: In accordance with the requirements of section 9 of the Reclamation Project Act of 1939, I submit herewith my report on the Heart Mountain power development, Shoshone Federal reclamation project, in Wyoming. The report contains the necessary allocations of costs and findings that the development is feasible from an engineering standpoint and that the estimated costs will probably be returned to the United States.

Pursuant to the procedures contemplated in section 1 of the Flood Control Act of 1944 (58 Stat. 887), the report has been transmitted to the Secretary of War and to the Governor of Wyoming, affording them an opportunity to submit their written views and recommendations with regard to the project. On June 4, 1945, the Secretary of War replied that the proposed Heart Mountain power development is consistent with the comprehensive plan of development of the water resources of the Missouri River Basin adopted by the Congress in the Flood Control Act approved December 22, 1944. The Governor of Wyoming, on May 4, 1945, advised that he approved this development in full without reservations of any nature. Copies of these two letters are attached.

The requirements of section 9 (a) of the Reclamation Project Act of 1939 and of section 1 of the Flood Control Act of 1944 having been met, the Heart Mountain power development is

authorized for construction in accordance with the Federal reclamation laws.

On June 19, I submitted my report on this development to the President. A copy of the President's reply of July 24 is attached.

Copies of the report have been reviewed by the other member agencies of the Federal Inter-Agency River Basin Committee. By letter of May 3, 1945, the Federal Power Commission, by letter of May 16, 1945, the Department of Agriculture, and by letter of May 30, 1945, the Corps of Engineers concurred in the proposed development. Copies of the letters from these three agencies are attached.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

## PROVISIONS OF FIRST DEFICIENCY APPROPRIATION ACT, 1946

[Extracts from] An act making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1946, and for prior fiscal years, to provide supplemental appropriations for the fiscal year ending June 30, 1946, and for other purposes. (Act December 28, 1945, 59 Stat. 632, 647, Public Law 269, 79th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1946, and for prior fiscal years, to provide supplemental appropriations for the fiscal year ending June 30, 1946, and for other purposes, namely:

\* \* \* \* \*

### RECLAMATION FUND, SPECIAL FUND

Construction: For additional amounts for salaries and expenses (other than project offices), construction of the following projects, and general investigations, including the objects specified under the head "Bureau of Reclamation" in the Interior Department Appropriation Act, 1946, to be expended from the Reclamation Fund, to remain available until expended and to be reimbursable under the Reclamation law:

\* \* \* \* \*

Shoshone project, Wyoming: Heart Mountain division, \$1,000,000; Power division, \$1,124,000.

# SOLANO COUNTY PROJECT

UNITED STATES DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION, REGION II, P. O. BOX 2511,  
*Sacramento, California, March 15, 1948.*

To: Commissioner  
From: Regional Director  
Subject: Report on Solano County Project—Central Valley  
Basin, California.

1. Presented herewith is a report on the Solano County Project, California. This project would conserve the runoff of Putah Creek by storage in Monticello Reservoir to supply urgently needed water for agricultural, municipal, industrial, and military purposes in Solano County; would provide flood control for the lower reaches of Putah Creek, and create new recreational benefits. For your convenience, a summary of the report and its conclusions and recommendations are presented in this letter. Substantiating materials are appended.

2. A draft of a report entitled, "Yolo-Solano Development of the Comprehensive Plan for Central Valley Basin, California," dated May 1947, was submitted to your office for review. That report was prepared along the general plan outlined for the Yolo-Solano Project in the Bureau of Reclamation's report on "Comprehensive Plan for Water Resources Development in Central Valley Basin, California," dated November 1945, as modified by the revised Regional Director's letter of December 1, 1947, on the same subject. Copies of the draft of the Yolo-Solano Development Report were also submitted to the State Engineer of California and local interests in the affected counties for review and comment. Local interests in Yolo County objected to the plan because it involved a coordinated development of the Cache and Putah Creek Basins and expressed some concern regarding the effect that the development would have on their existing rights to the waters of Cache Creek in Yolo County. The State Engineer of California also objected to the coordinated development of the two basins. After several conferences with the State Engineer and the local people involved, it was decided to separate

the two developments and proceed on a revised plan based on the development of Putah Creek for the benefit of Solano County where the need for additional water is most urgent. Further studies were made and this report presents the revised plan.

3. The Solano County Project is proposed as a part of the Bureau of Reclamation's comprehensive plan for the Central Valley Basin. While the plan presented herein for the development of the waters of Putah Creek for use in Solano County would be essentially an individual development, it not only conforms to the concept of conserving the limited waters of Central Valley, but is so planned that it can be coordinated with existing and potential works in the Central Valley Basin.

#### AUTHORITY FOR THE REPORT

4. This report is authorized to be made by virtue of the Federal Reclamation Laws, (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplemental thereto).

#### COOPERATION AND ACKNOWLEDGMENT

5. This report was made possible by the cooperative efforts of numerous Federal, State, and local governmental agencies, civic groups, and private citizens, extending over a number of years. Those agencies, groups, and individuals who have assisted the Bureau during the investigations are too numerous to mention here, but their cooperation is most gratefully acknowledged. Special recognition is given to the Solano County Water Council, organized under the Solano County Board of Supervisors, whose outstanding and continued cooperation has been most helpful throughout the investigations.

#### DESCRIPTION OF THE AREA

6. Solano County extends into the Coast Range on the west, but most of the county is on the main Sacramento Valley floor. Except for an isolated area of low, rolling hills in the southeast corner, the valley lands of Solano County are a gently sloping, alluvial plain rising from elevations near sea level along the eastern and southern boundaries to about 100 feet at the edge of the foothills. The valley portion of the county is 15 to 25 miles wide east and west, and about 35 miles long. Adjacent to Suisun Bay along the south central boundaries of the county, there is a large area of tidal plains and marshlands containing a maze of natural drainage channels. The easternmost portion of the county bounds on Sacramento River where old channels and sloughs have created several islands which have been reclaimed for agricultural purposes by levees and drains. The inland portions of the county contain no major streams although several foothill creeks flow out onto the main valley floor. These creeks

carry storm waters only and their channels become less distinct as they proceed away from the foothills.

\* \* \* \* \*

12. Opportunity for agricultural and industrial expansion is great. However, this increased development is dependent upon the availability of additional water supplies.

#### NEED FOR DEVELOPMENT

13. About 50,000 people living in the Cities of Vallejo, Benicia, Fairfield, and Suisun, are now faced with critical problems of water shortages. The present supply of the City of Benicia, which furnishes water to the Benicia Army Arsenal, is insufficient to meet the needs; and conditions have become so critical that additional fresh water is supplied by carrying it in from other areas by barges. Fairfield and Suisun are barely able to meet the normal demands, and during the past summer, water use was placed on a restricted basis. The Air Transport Command Base, west of Fairfield, has been short of water ever since its construction, due to the inability to obtain sufficient water from the local groundwater sources in that area. The City of Vallejo is able to meet its demands and those of Mare Island Navy Yard, which receives its water supply from the city, only because water in addition to the local supply is imported from East Bay Municipal Utility District. Vallejo's contract with East Bay Municipal Utility District expires in 1952, and the Utility District has advised the city that it does not wish to renew the contract because of increasing demands in the East Bay area. The City of Vallejo and Mare Island Navy Yard must, therefore, have available a new source of supply by 1952 or face a disastrous water shortage.

14. The total net irrigable acreage in the potential project service area is around 215,000 acres, of which approximately 27,000 acres are now irrigated from groundwater. Expansion of irrigation in the area is essential to a stable agricultural economy and to meet the growing needs for agricultural products in the area. About 5,000 acres of presently irrigated land west of Fairfield need supplemental water in order to obtain maximum production. The remaining irrigated areas are approaching full utilization of their water supply and continued expansion probably will result in overdrawing their present supply.

\* \* \* \* \*

16. Present flood damage along the lower reaches of Putah Creek has been estimated by the Department of the Army, Corps of Engineers, to be about \$50,000 annually. The Corps of Engineers further estimate that an additional benefit of approximately \$28,000 annually would accrue from improved use of the presently flooded lands if the damage were eliminated. Some minor levee work and channel improvement would be needed along the lower reaches of Putah Creek in conjunction with Mon-



ticello Reservoir for complete flood control. The annual benefit attributable to Monticello Reservoir would be \$75,000.

\* \* \* \* \*

### PROJECT PLAN

18. The Solano County Project would include as its principal feature a dam at the Monticello (Devil's Gate) site, located on Putah Creek at the point where that stream crosses the eastern Napa County Line. The reservoir, which would have a capacity of approximately 2,200,000 acre-feet, would be located entirely within Napa County. It would flood Berryessa Valley, which contains about 11,000 acres of fertile agricultural lands, an equal amount of non-irrigable range lands, and the small town of Monticello with a population of approximately 125. The total population within Berryessa Valley is approximately 300. Although the gross annual income from this valley, based on 1939-44 average crop values, is over \$500,000, and the net annual income is about \$228,000, the benefits which would accrue from the project operation would far exceed the damage. Since the Central Valley Basin as a whole has irrigable lands in excess of the potential water supply, and since the benefits exceed the damage the inundation of Berryessa Valley is considered justifiable from the standpoint of general State and national welfare.

19. A reservoir of 2,200,000 acre-feet capacity at the Monticello site would produce a firm annual yield of 285,000 acre-feet of water, and provide almost complete flood control along the lower reaches of Putah Creek when supplemented by a small amount of channel improvement and levee work. The water controlled by Monticello Reservoir would be released downstream about two miles to a diversion dam where it would enter a canal extending southward along the edge of the foothills to a point near Cordelia northwest of Suisun Bay. Water would be released from the canal along its route for irrigation, and to supply water to the Army Air Transport Command Base, City of Fairfield, and City of Suisun. A small terminal reservoir would be located at the extreme southern end of the canal from which water would be made available for transport, through conduits provided by the local interests, to the Cities of Benicia and Vallejo and their related military establishments.

\* \* \* \* \*

23. No initial power plant installation is contemplated at Monticello Dam. The available water supply and head is comparatively small from the standpoint of power production and special releases for power would not be possible under full project operation due to the demand for water for other purposes. The inclusion of a power plant, therefore, does not appear economical from the commercial power production standpoint at this time. However, it seems probable that future conditions may justify a power installation at the dam, especially if further increases in the cost of

fuel for steam electric plants take place, or further fuel conservation practices become necessary. It is, therefore, proposed that provisions be made in the initial construction of Monticello Dam for a future power plant. The cost of making these provisions is not included in the construction costs shown herein, but the cost of these additional works would not increase the total construction cost of Monticello Dam by more than 1 or 2 percent. This is probably within the limits of accuracy of the overall preliminary cost estimates.

\* \* \* \* \*

#### CAPITAL AND EQUIVALENT ANNUAL COSTS

25. The total capital cost or Federal project investment, based upon January 1948 price index level, is estimated at \$49,806,000, of which \$25,758,000 is for Monticello Dam and Reservoir; \$10,848,000 for the conveyance units and auxiliary works; and \$13,200,000 for the lateral-distribution and drainage system. The capital costs, net project investment, and the annual equivalent cost of the various project features are given in the tabulation below. The operation and maintenance expense included in the equivalent annual cost is based on the estimated expected future operation and maintenance expense of the project considered as equivalent to the (1939-1944) average cost index level.

\* \* \* \* \*

#### BENEFITS

26. The annual net direct benefits that would result from use of irrigation water from the project have been computed on the basis of the increase in net income to the farmers that would accrue from the use of project water as contrasted with the present net income. Indirect benefits have been computed to be equal to the direct benefits. The annual net benefits that would accrue from the municipal, industrial, and military water supply have been taken as equal to the equivalent net irrigation benefits that would accrue if the water were used for agricultural purposes.

27. The annual net flood control benefits were based on estimates made by the Department of the Army, Corps of Engineers, and the recreational benefits were based on estimates made by the National Park Service. These estimates included both direct and indirect benefits. While some benefit would accrue from improved fish and wildlife conditions, the amount would be small, so no monetary value was assigned.

\* \* \* \* \*

#### OVERALL BENEFIT COST RATIO

30. From the foregoing total annual net direct and indirect benefits estimated at \$9,682,000, and the total equivalent annual

costs estimated at \$2,033,000 (including \$714,000 for distribution and drainage system) the overall benefit cost ratio would be 4.8 to 1.0.

### ALLOCATION OF COST

31. The allocation of the joint capital costs of the dam and reservoir was based on a non-reimbursable component to flood control and a reimbursable component to be repaid by irrigation, municipal, industrial, and military water users. The non-reimbursable flood control allocation was determined by capitalizing the annual flood control benefit at 3 percent for 50 years. The remaining capital cost of the dam and reservoir, and all of the cost of the other primary project works, was allocated on the basis of joint use with 85.7 percent being allocated to irrigation, and 14.3 percent being allocated to municipal, industrial, and military use. The distribution system was allocated entirely to irrigation.

\* \* \* \* \*

### PROBABLE PROJECT RETIREMENT

33. In determining the probable retirement of the capital costs of the proposed features allocated to irrigation and municipal purposes, the following criteria were applied:

(a) Water for irrigation would be delivered under the provisions of Section 9(e) of the Reclamation Project Act of 1939. The rates would be sufficient to cover all customary operating expenses and a fixed charge to retire the capital investment—all to be within the ability of water users to pay, over a protracted period, from the increased net income that would accrue as a result of the project.

(b) The water for municipal supply purposes, including domestic, industrial, and military users, would be furnished under the provisions of Section 9(c) of the Reclamation Project Act of 1939, at a rate at least sufficient to repay, in addition to all customary operating expenses, the estimated cost allocated to municipal water within the retirement period for the project, plus interest at 3 percent per annum on the unpaid annual balances.

(c) All net revenues, including both capital and interest components, received in accordance with the repayment procedures outlined above would be credited to the reclamation fund, pursuant to the Act of May 9, 1938 (52 Stat. 291, 318), until the accumulation thereof equals the actual construction cost of the project.

(d) The capital cost of the lateral-distribution system would be repaid by the users thereof, under the provisions of Section 9(d) of the Reclamation Project Act of 1939.

\* \* \* \* \*

### REPAYMENT CAPACITY

39. The repayment capacity of the municipal, industrial, and military users is well in excess of any amounts that would have to be charged for this type of water from the project. Many municipal and industrial users in this section of the State are now

paying prices equal to several times that contemplated from the Solano County Project.

\* \* \* \* \*

### FUTURE DEVELOPMENT

43. The plan proposed will provide adequate water for the present needs of Solano County and permit a substantial expansion in irrigation and urban type use. Ultimately, additional water will have to be imported to meet the far future needs of the county. This additional water can be obtained from Sacramento River when increased supplies are made available by the future construction of potential reservoirs in the Sacramento River Basin.

\* \* \* \* \*

### CONCLUSIONS

47. The conclusions reached are:

a. There is immediate need for an additional municipal, industrial, and military water supply in Solano County. There is also need for an additional irrigation supply to supplement local areas of overdraft and to provide for expansion of the agricultural economy of the county.

b. A coordinated development to provide both urban and rural type water is desirable. Separate development of rural and urban water supplies would place an added burden on the agricultural users and delay the agricultural development of Solano County.

c. Putah Creek offers the most feasible and economical source of water to meet the present and combined near future urban and rural water supply needs of the county.

d. A project based on a 2,200,000 acre-foot reservoir at Monticello has a greater benefit to cost ratio and would more nearly meet the water needs of Solano County than a project based on a 1,600,000 or 1,000,000 acre-feet of storage at that site.

e. The Solano County Project has engineering feasibility and the reimbursable costs can be fully repaid in about 50 years with reasonable rates for water that are within the water users' ability to pay.

f. Additional water will ultimately need to be imported from Sacramento River in order to attain full development of Solano County.

g. Surplus waters in Monticello Reservoir during the Solano County Project development period could be used in coordination with existing Central Valley Project works.

### RECOMMENDATIONS

48. It is recommended:

a. That Monticello Reservoir, with a capacity of 2,200,000 acre-feet and the following related works constituting the Solano County Project, California, be authorized to be constructed, operated, and maintained by the Bureau of Reclamation, Department of the Interior, pursuant to the Federal Reclamation Law (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), substantially in accordance with the plans set forth in this report with such modifications as may be recommended by the Commissioner, and approved by the Secretary of the Interior after full consultation with local interests and the State of California:

Putah Creek Diversion Dam  
Putah South Canal

Sweeney Creek Wasteway  
Vacaville Wasteway  
Terminal Reservoir and Wasteway  
Necessary Lateral and Drainage Works

b. That provisions for future power installation be authorized for inclusion in the initial construction of Monticello Dam.

(Signed) RICHARD L. BOKE.

UNITED STATES DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION,  
*Washington 25, D. C., April 26, 1948.*

The SECRETARY OF THE INTERIOR.

SIR: Transmitted herewith is my report on the Solano County Project, California, which is proposed as a part of the Department of the Interior's comprehensive plan for the development of the water resources of Central Valley Basin.

The Solano County Project, as outlined in the attached Regional Director's report, dated March 15, 1948, is needed urgently to provide a dependable water supply for important national defense establishments in Solano County and to provide irrigation, municipal, and industrial water, without which the rapidly growing economy of the County can not be sustained. Flood control, recreation, and fish and wildlife improvements are also included in its multiple purpose functions.

The most critical immediate need is for municipal water to meet the demands of the Cities of Vallejo, Benicia, Fairfield and Suisun which serve and support military establishments. All of these cities with the exception of Vallejo are now experiencing water shortages and have exhausted the local water resources. Vallejo has a barely adequate water supply only because of water imported across Carquinez Straits under a war emergency contract with East Bay Municipal Utility District. This contract expires in 1952 and the Utility District had advised the City that the contract will not be renewed because of increasing demands in its own service area along the east shore of San Francisco Bay.

Municipal and industrial requirements within the growing cities create within themselves an immediate need for additional water. The crucial problem, however, is the present deficiency in firm water supply for the Mare Island Navy Yard which receives its water from the City of Vallejo, Benicia Arsenal which is served by the City of Benicia, and the Army's Air Transport Command Base near Fairfield which obtains a meager water

supply from inadequate and failing local groundwater resources. All three of these military bases are permanent establishments of great importance.

The need for water to protect existing irrigation development in Solano County and to make possible the expansion of the County's agricultural economy is of less than paramount importance only in comparison with the emergency condition facing the urban areas and military establishments. Local irrigation supplies have been exploited beyond their safe yield in some localities and nowhere are the present supplies adequate to meet the demand for increased agricultural production brought about by increasing population within the County and the adjoining San Francisco Bay area.

Putah Creek, a local tributary of the Sacramento River that is now wasting practically all of its 375,000 acre-feet of average annual runoff into the ocean, is the most logical and economical source of water supply for the combined needs of Solano County.

The Solano County Project, as outlined in the Regional Director's report of March 15, 1948, provides for a large storage reservoir at the Monticello site on Putah Creek, a small diversion dam two miles downstream, a 42 mile main canal, and the necessary wasteways, laterals, and drainage works. The Regional Director recommends that the capacity of Monticello Reservoir be 2,200,000 acre-feet. A reservoir of this size would produce a firm annual yield of 285,000 acre-feet, eliminate practically all of the present flood damage along the lower reaches of Putah Creek and create valuable new recreation benefits. Some improvement to fish and wildlife would also be obtained.

The yield from the reservoir would provide a dependable municipal, military, and industrial water supply equal to about three times the immediate requirements. It would make available a water supply for about 119,000 acres of land, including 7,000 acres of presently irrigated land now served from inadequate groundwater supplies and 112,000 acres of new lands. Of these, 5,000 acres and 88,125 acres respectively would be served in any one year.

In general, I concur in the findings of the Regional Director and approve his report, except for the two following modifications:

- (1) In reference to the capacity of the Monticello Reservoir, the State of California has maintained that the capacity of the Monticello Reservoir should be held to approximately 1,600,000 acre-feet. A reservoir of this lower capacity would provide a firm water yield about 10 percent less than that from the larger 2,200,000 acre-feet structure. The flood control function and the service to municipal and industrial water users would remain unchanged while the acreage of new lands that could be irrigated would be reduced about 11 percent. Although the smaller project would result in a slightly lower ratio of benefits to costs and would not permit the same degree of development as the larger reservoir, it would have the advantage of slightly lower annual costs to the irrigation water users, and slightly greater

assurance of a firm water supply. In view of the relatively minor differences involved in reducing the proposed reservoir capacity, and because of the advantage of having unanimous agreement between Federal, State and local interests, I recommend that the Monticello Reservoir be constructed to a capacity of 1,600,000 acre-feet, and that the related irrigation facilities be constructed to correspondingly smaller proportions. Such a project would serve a total of 105,800 acres of which 5,000 acres of lands presently irrigated and 77,560 acres of new lands, would receive water in any one year as presented in the Substantiating Materials to the Regional Director's report.

(2) With respect to the costs allocated to domestic and industrial water supply, I recommend that no interest be charged on unpaid balances due on these items, and that in lieu thereof, these water users continue their payments beyond the period required to retire the costs allocated to domestic and industrial water supply, and that those payments be applied to repayment of irrigation costs. The total payments by the domestic and industrial water users would be identical with what they would pay if the interest procedure were applied, and the revenues to the United States would be the same. The domestic and industrial water users, from the start, have agreed to purchase water at a rate, and over a period of years, sufficient to render assistance to the irrigation water users. It is appropriate, therefore, for this procedure to be used, for, among other things, it will result in the same period of payment by the domestic and industrial water users as will apply for the irrigation water users.

The plan has engineering feasibility. The overall cost of the project is estimated at \$45,577,000. Of this, \$11,900,000 is for the irrigation distribution system which, if constructed by the Bureau of Reclamation, will be fully reimbursable within forty years under a separate contract as provided by Section 9 (d) of the Reclamation Project Act of 1939. The remaining \$33,667,000 is for reservoirs, main canals, and related facilities, the tentative allocation for which is as follows: \$26,699,000 to irrigation, \$5,048,000 to municipal and industrial water supply, and \$1,930,000 (nonreimbursable) to flood control. Based upon the indicated desires of the water users irrigation payments will be accomplished under contracts as provided for by Section 9 (e) of the Reclamation Project Act. Payments for municipal and industrial water would be covered by contracts under Section 9 (c).

It is estimated that all reimbursable costs (other than for the distribution system which would be repaid in 40 years) would be returned to the Government in 50 years with the irrigators paying \$3.80 per acre-foot for water and the domestic and industrial water users paying \$10.00 per acre-foot for untreated water delivered at terminal reservoirs or other points in the project canal system. The revenues from the sale of water at \$10.00 per acre-foot for domestic and industrial purposes would pay off the \$5,048,000 allocated to those uses in 29 years. The domestic and industrial users, however, would continue their

payments for the full 50 years and the amount which they would pay between the 29th and 50th year (about \$6,500,000) would be applied to payment of irrigation costs. The distribution system, if constructed by the Bureau of Reclamation could be repaid in 40 years with an annual charge of \$7.25 per acre, including operation and maintenance costs during that period.

The following tabulation summarizes the tentative allocations and estimated payments:

<i>Reservoirs, Main Canals and Related Facilities</i>		<i>Payment</i>
(1) Allocated to irrigation.....	\$26,699,000	
Allocated to irrigation and paid by revenue from sale of domestic and industrial water supplies .....	6,500,000	
To be paid by irrigation water users.....	20,199,000	\$20,199,000
(2) Allocated to domestic and industrial water supplies .....	5,048,000	
Allocated to irrigation and paid by revenues from sale of domestic and industrial water supplies .....	6,500,000	
To be paid by domestic and industrial water users .....	11,548,000	11,548,000
(3) Allocated to flood control, (non-reimbursable <sup>1</sup> ) .....	1,930,000	<sup>1</sup> 1,930,000
<i>Distribution System</i>		
(1) Allocated to irrigation and to be repaid by irrigation water users.....	11,900,000	11,900,000
Estimate of total project cost.....		45,577,000

Annual payments, including payment on capital investment plus operation and maintenance would approximate the following:

	<i>Operation and maintenance</i>	<i>Total</i>
<i>Irrigation Water Users (per average acre):</i>		
For Water (50 years); \$3.80 per acre-foot total (including approximately \$1.30 for O&M) with average annual requirement of 2.7 acre-foot at canal side....	\$3.50	\$10.25
For distribution system (40 Years).....	3.65	7.25
Estimated totals .....	7.15	17.50
<i>Domestic and Industrial Water Users: Per acre-foot at terminal reservoirs or other points in the project canal system, but not including treatment of water, or facilities to regulate water supplies thus received, or to convey them from the project facilities to the points of use.....</i>		
		10.00

I recognize the necessity for taking into account the possibility of increased costs which may or may not eventuate. Any increase or decrease in costs will, if necessary, be reflected in extensions or reductions, as the case may be, of the period during which construction costs are returned by collections from irrigation, domestic and industrial, and other water users. If experience should indicate costs exceeding the estimates contained in this



report, the water rates to be paid by the water users should remain the same as herein proposed until the actual cost is repaid. The costs of the irrigation distribution systems, of course, would be repaid within the 40 year period required by law.

A bill, H. R. 5927, to authorize the Solano County Project substantially in accordance with the plan as presented in the Regional Director's report of March 15, 1948, but providing 1,600,000 acre-feet as the capacity of the proposed Monticello Reservoir, has been introduced in the Congress. Hearings on the bill were held by the Subcommittee on Irrigation and Reclamation of the House Public Lands Committee on April 12 and 13. At these hearings, testimony was presented for the State of California favoring the project, and including the following statement in a letter to Subcommittee Chairman Rockwell signed by Governor Earl Warren.

For the foregoing reasons, and because I believe that the construction of the project as proposed would yield the greatest benefits to the greatest number of people, and because the Bureau of Reclamation favors the Monticello reservoir site as opposed to the other sites on Putah Creek, I favor the construction of the project as outlined in H. R. 5927, and respectfully request favorable action on the bill by your Committee.

The proposed plan has been reviewed by field officials of the Corps of Engineers, Department of the Army, and in his report to Chairman Welch of the House Public Lands Committee on H. R. 5927, the Secretary of the Army included the following statement:

I am pleased to advise you, therefore, that I am able to accept the submission of the report of the Regional Director to the District Engineer in this case as compliance with the procedure set forth in the Flood Control Act of 1944; and that this Department has no objection to enactment of H. R. 5927.

Inserted also in the testimony in support of the plan, was a letter to you from the Honorable W. John Kenney, Acting Secretary of the Navy, dated March 12, 1947, requesting that you urge the Congress to approve the Solano Project and authorize its construction as essential to the national defense.

I recommend that you approve and adopt this report as your proposed report on the Solano County Project, and that you authorize me, in your behalf, to take the necessary steps to comply with Section 1 of the Flood Control Act of 1944 (58 Stat. 887), and with the provisions of the Act of August 14, 1946 (60 Stat. 1080).

Respectfully,

(Signed) MICHAEL W. STRAUS,  
*Commissioner.*

Approved and adopted May 5, 1948.

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

BUREAU OF RECLAMATION,  
*Washington 25, D. C., November 10, 1948.*

The SECRETARY OF THE INTERIOR.

SIR: On May 5, 1948, you adopted my report on the Solano County Project, California, as your proposed report, and authorized me to take the necessary steps to comply with the provisions of Section 1 of the Flood Control Act of 1944 (58 Stat. 887), and with the provisions of the Act of August 14, 1946 (60 Stat. 1080).

In your behalf, copies of the report were transmitted to the Secretary of the Army and to the State of California for comments as required by the above mentioned statutes. In addition, copies of the report were transmitted to the Department of Agriculture, the Department of Commerce, and the Federal Power Commission for their comments. Copies of the report and of all the comments received are attached.

These comments, particularly those of the State of California and the Department of the Army, reveal agreement that there is urgent need for supplemental water supplies for the cities of Fairfield, Suisun, Benecia, and Vallejo, and for the key military installations of the Fairfield-Suisun Army Air Base, Benecia Arsenal, and the Mare Island Navy Yard. There is agreement, too, that construction of the Solano County Project is the best method of meeting these needs. The need for water to protect existing irrigation development in Solano County, to broaden the base for the County's rapidly expanding economy, and to extend economic opportunity to its growing population is only slightly less urgent.

In view of the comments received, and because of the desirability of seeking early authorization of the project, I recommend that you adopt the proposed report which you approved on May 5, 1948, as your report; that you find the Solano County Project to be feasible in accordance with the provisions of Section 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187); and that you transmit it, together with copies of the attached comments, to the President and subsequently to the Congress in accordance with that Act.

Respectfully yours,

(Signed) KENNETH MARKWELL,  
*Acting Commissioner.*

Approved and adopted November 11, 1948.

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

OFFICE OF THE SECRETARY,  
*Washington 25, D. C., November 11, 1948.*

THE PRESIDENT,  
THE WHITE HOUSE,  
*(Through the Bureau of the Budget).*

MY DEAR MR. PRESIDENT: Attached is my report on the Solano County Project, California. This report is transmitted to you pursuant to Section 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187).

The report was prepared by the Bureau of Reclamation. The Commissioner of Reclamation recommends authorization for construction of a dam and storage reservoir at the Monticello site, a diversion dam, main canal, and the necessary wasteways, laterals, and drainage works. The project would provide water to irrigate 83,000 acres and would alleviate shortages in domestic and industrial water supplies at a number of cities and important military installations in the vicinity. The Commissioner indicates that the entire cost of the project would be returned to the Federal government within a 50 year period by the users of irrigation, municipal, and industrial water.

The report has been transmitted to the State of California and to the Secretary of the Army for their views and recommendations, as required by the provisions of the Flood Control Act of 1944 (58 Stat. 887), and to the State of California for the comments of the head of the agency exercising administration over the wildlife resources of that State, as required by the provisions of the Act of August 14, 1946 (60 Stat. 1080). In addition, the report was transmitted to the Department of Agriculture, the Department of Commerce, and the Federal Power Commission. Copies of the comments received in response to these transmittals, all of which are favorable or raise no objections, are attached.

I find that the proposed construction has engineering feasibility; that the estimated cost of the proposed construction is \$45,577,000; that the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users is \$38,599,000; that the part of the estimated cost which can properly be allocated to municipal water supply or other miscellaneous purposes and probably be returned to the United States is \$5,048,000; and that the part of the estimated cost which can properly be allocated to flood control is \$1,930,000. The total of the repayable and returnable allocations to irrigation and to municipal water supply or other miscellaneous purposes, together with the non-reimbursable allocation to flood control, equals the total estimated cost of construction.

The requirements of Section 9 (a) of the Reclamation Project Act of 1939 and of Section 1 (c) of the Flood Control Act of 1944 having been met, I find that the Solano County Project is authorized for construction in accordance with the Federal Reclamation laws.

Unless you have objection, the report and other documents enclosed will be transmitted to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

UNITED STATES DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington 25, D. C., January 28, 1949.*

Hon. ALBEN W. BARKLEY,  
*President of the Senate.*

MY DEAR MR. VICE-PRESIDENT: In accordance with the provisions of Section 9 of the Reclamation Project Act of 1939 I submit herewith my report and findings on the Solano County Project in the Central Valley Basin of California. The Solano County Project consists of a dam and storage reservoir on Putah Creek at the Monticello site, a diversion dam, main canal, and the necessary wasteways, laterals, and drainage works. The project would provide water to irrigate 83,000 acres and would alleviate shortages in domestic and industrial water supplies at a number of cities and important military installations in the vicinity.

My report and findings are contained in the attached letter, dated November 11, 1948, addressed to the President and incorporated herein by reference.

There has been uniform approval of the project by all of the Federal agencies which have primary concern with the development of water resources. The Departments of the Army, Air Force, and Navy have all urged that the proposed construction be undertaken promptly in order to alleviate the effects of the critical water supply situation on the important military establishments in the area. While repayment of only a portion of the total project cost is identified with keeping these establishments supplied with water, the necessity for supplying these water needs at this time is practically compelling. The multiple-purpose Solano County Project is the only satisfactory solution available.

The total estimated cost of the proposed construction is \$45,577,000, of which \$26,699,000 is allocated to irrigation; \$11,900,000 is for a distribution system for irrigation water; \$5,048,000 is allocated to domestic and industrial water supplies, and \$1,930,000 is allocated to flood control. The financial analysis for the project, which is prepared upon the basis of repayment of appropriate costs within 50 years, is on the basis of repayment

at the rate of \$3.80 per acre foot for irrigation water supplies, and a charge of \$10 per acre foot for water sold for domestic and industrial water supplies. The domestic and industrial water users will assist in the repayment of the total cost of water to an extent that will reduce the ultimate charges to the irrigators. Their repayments are shown to approximate \$11,600,000. Repayments by the irrigators are thus shown to approximate \$20,200,000 for the reservoirs, main canals and related facilities, and \$11,900,000 for the distribution system, if that work is undertaken by the Bureau. The cost of the distribution system will be repaid in 40 years.

The views and recommendations of the Governor of the State of California and the Secretary of the Army obtained pursuant to Section 1 of the Flood Control Act of 1944 (58 Stat. 887) are incorporated in the enclosed documents. The requirements of Section 9 (a) of the Reclamation Project Act of 1939 and of Section 1 of the Flood Control Act of 1944 having been met, I find that the Solano County Project is authorized for construction in accordance with the Federal Reclamation Laws.

On November 11, 1948, this report was submitted to the President. The Director of the Bureau of the Budget, noting the importance of the project to national defense needs as well as the water supply benefits, and the unanimity of the State and Federal agencies with respect to its meritorious character, has advised there is no objection to the submission of this report to the Congress. A copy of his letter is attached.

Sincerely yours,

(Signed) J. A. KRUG,  
*Secretary of the Interior.*

# STRAWBERRY VALLEY PROJECT

SEPTEMBER 8, 1905.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Investigations by the Reclamation Service have been in progress in the State of Utah for over two years. These have extended to the reconnaissance of the Bear Lake and Bear River Basin and the possibilities of irrigation therefrom. These have been found to be very expensive and of such magnitude and doubtful feasibility as not to justify detailed surveys at the present time. The same is true of the Weber River basin.

More detailed investigations have been made of Utah Lake and the possibilities of its development but these have failed to develop a feasible project.

Investigations have also been made of a reservoir site in Strawberry Valley on one of the tributaries of the Duchesne River, and it has been found that water can be stored in that valley and taken to the Spanish Fork by means of a tunnel. The capacity of the reservoir will be approximately 100,000 acre-feet, and the tunnel would be about 19,000 feet in length. Borings have been made along the line of the tunnel, and no unusual difficulties have been discovered which might threaten the success of the project.

The lands which can be covered by the combination of stored water from Strawberry Valley and the natural flow of Spanish Fork are about 50,000 acres in area, approximately one half of which is now irrigated, but a large portion of which irrigated land has an insufficient water supply. The land is all in private ownership and the owners have formed a water users association, the purpose being to bring all of these lands into the association to subscribe for the Government project, the rates to be equitably fixed as provided for in the Reclamation Act, the distribution of payments among the various ownerships to be proposed by the water users association for departmental approval. The project is estimated to cost approximately \$1,250,000, but this may be increased owing to the uncertainties of estimates in a long tunnel.

A board of engineers, consisting of Messrs. Savage, Quinton, Sanders and Swendsen, recently examined the location and surveys, with a view to the construction of this project under the

provisions of the Reclamation Act. This board reports the project as feasible and recommends its construction as soon as the people owning the land to be irrigated have complied with the requirements of the Reclamation Act in assuring the return of the fund under the conditions imposed by the Act, and proper adjustments of water rights of Spanish Fork and its tributaries have been made.

I have the honor to concur with the recommendations of the board of engineers, and to recommend that the Strawberry Valley Project receive the preliminary approval of the Department and I be authorized to announce to the water users' association that as soon as the people have made the proper adjustment of water rights and guaranteed the return of the Reclamation fund in a manner acceptable to the Department, construction on the system will be promptly undertaken.

Very respectfully,

(Signed) H. C. RIZER,  
*Acting Director.*

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Salt Lake City, Utah, October 2, 1905.*

Mr. F. H. NEWELL,  
*Chief Engineer, Reclamation Service, Washington, D. C.*

DEAR SIR: The undersigned Board of Engineers have considered the status of the Strawberry Valley Project and the plans of Mr. Geo. L. Swendsen looking to its early construction.

A meeting of the prominent land and water owners concerned in the project was held at Spanish Fork October first which we attended, where many questions of policy and law were discussed by Mr. Bien.

We find that nearly nine-tenths of the land holdings concerned have been pledged to the support of the proposition, and it is the aim and determination of the people to secure a very thorough cooperation of all the water rights in the district. There appears to be no opposition to the project, and the people are showing a highly cooperative spirit. It is probable that within a very short time all the owners of land will have signed proper agreements, and the Government will be justified in taking up the construction.

The land is all in private ownership, and about 97% is in holdings of eighty acres or less. From every point of view the project is a meritorious one, and eminently adapted to the purposes and provisions of the Reclamation Act.

In the estimate recently made of the prospective state of the Reclamation Fund June 30, 1908, no account was taken of prospective returns from irrigated lands under the provisions of the Act. These returns will begin in 1906, will become important in 1907, and in 1908 should be over two millions per annum, and thereafter approximately three millions per annum. We are confident that the state of the Fund justifies undertaking the Strawberry Valley Project, which being a tunnel will require a long time in construction, and a slow expenditure of money.

We respectfully recommend that the Honorable Secretary of the Interior be requested to reconsider the withdrawal of his approval of the Strawberry Valley Project, and that construction thereon be authorized and commenced as soon as the people have their affairs in proper shape, which will apparently be in the very near future.

No project has yet been undertaken in Utah, and the one proposed is not large, and is one of the most meritorious ones that has been presented to the Reclamation Service.

Very respectfully,

(Signed) A. P. DAVIS,  
*Assistant Chief Engineer.*  
MORRIS BIEN,  
*Supervising Engineer.*  
J. H. QUINTON,  
*Supervising Engineer.*  
W. H. SANDERS,  
*Consulting Engineer.*

UNITED STATES GEOLOGICAL SURVEY,  
*Washington, D. C., December 15, 1905.*

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: Replying to your inquiry of December 14, I beg to state that as yet there has not been reported to this office a feasible and practicable reclamation project in the Territory of Oklahoma, such as is evidently covered by the provisions of Section 9 of the Reclamation Act. A board of engineers has recently examined and passed upon the surveys and estimates prepared for work in that Territory, and under date of November 18 has recommended certain further investigations, the results of which will probably be available in the spring of 1906. Until these further facts are determined, it is not possible to state that there is a feasible project now known in the Territory.

In view of this fact, I respectfully recommend that the sum of \$1,250,000 be set aside under the usual conditions for the con-



struction of what is known as the Strawberry Valley project in Utah, referred to in my letters of September 8 and October 17, 1905.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, December 15, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to your letter of September 8th last, recommending for reasons stated therein that the Strawberry Valley Reclamation project in Utah be approved, and to the subsequent correspondence between your office and the Department on that subject, including your letter of even date herewith, in which you recommend that the sum of \$1,250,000 be set aside under the usual conditions for the construction of said project, you are advised that after a careful consideration of the matter your recommendation is concurred in, provided, however, that this action is based upon the provision and condition that all of the complications involved be adjusted, including all conflicts that may exist in regard to water rights; that a sufficient acreage be pledged to secure the return to the Reclamation Fund of the cost of construction; and that a clean-cut, feasible reclamation project, free from all complications or difficulties of any kind or character be secured, before a dollar is spent in construction.

I have been very largely influenced in taking this action by the following paragraph in the report of the Board of Engineers, dated October 2, 1905, the signatures to which are headed by Mr. Arthur P. Davis, Assistant Chief Engineer of the Reclamation Service:

In the estimate recently made of the prospective state of the Reclamation Fund June 30, 1908, no account was taken of the prospective returns from irrigated lands under the provisions of the Act. These returns will begin in 1906, will become important in 1907, and in 1908 should be over two millions per annum, and thereafter approximately over three millions per annum. We are confident that the state of the fund justifies undertaking the Strawberry Valley project, which, being a tunnel, will require a long time in construction, and a slow expenditure of money.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# SUN RIVER PROJECT

FEBRUARY 13, 1906.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: I have received by Departmental reference a letter, dated February 7, from Hon. Jos. M. Dixon, enclosing a communication from the Sun River delegation, signed by J. G. Bair, chairman, under date of February 5. This communication sets forth the attractions of the Sun River project and the claims of the people of that vicinity to the consideration of the Government and urges the construction of the Sun River project under the provisions of the Reclamation Act.

It is entirely true that the project is feasible and attractive from every point of view, and that the people have exhibited a cooperative spirit in adjusting water rights and otherwise rendering it possible for work to begin in this vicinity.

In the present state of the reclamation fund, however, it is not possible to undertake any new project beyond those already approved by the Department without occasioning embarrassing delays in the construction of the projects undertaken.

I respectfully recommend that the Sun River project be formally approved for future construction and that Mr. Bair be informed of the condition of the reclamation fund and the impossibility of undertaking construction work on this project in the immediate future.

I further recommend that Mr. Bair be informed that the United States will not obstruct in any manner any enterprise which the people themselves or private capital may desire to construct so long as it does not prevent the ultimate development of a comprehensive project under this system.

Very respectfully,

(Signed) CHARLES D. WALCOTT,  
*Director.*

DEPARTMENT OF THE INTERIOR,  
*Washington, February 26, 1906.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: On the 13th instant you reported on a letter of the 7th instant from Hon. J. M. Dixon covering a communication of the 5th instant from Mr. J. G. Bair, Chairman, Sun River delegation setting forth the desirability of the construction of the Sun River Project, Montana.

You have stated that the project is entirely feasible and attractive from all points of view but that it is not possible, in the present state of the Reclamation Fund, to undertake any new project beyond those already approved without occasioning embarrassing delays in their construction.

You have, however, recommended that the project be formally approved for future construction.

In view of your recommendation I hereby approve the Sun River Project, the work of construction not to be undertaken till such time as you are formally authorized to proceed therewith.

In a letter of even date Mr. Bair has been suitably informed in the premises.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# TRUCKEE RIVER STORAGE PROJECT

OFFICE OF THE SECRETARY,  
*Washington, July 18, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*) indicated that Section 4 of the Act of June 25, 1910, 36 Stat. 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Truckee Storage project is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924, 43 Stat., 701.

Section 4 of the Act of June 25, 1910, provides, in effect that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902, 32 Stat., 388 and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of August 30, 1933, I approved an allotment of \$1,500,000 for the construction of upstream storage on the Truckee River, Nevada, \$1,000,000 of which is still available. The water developed in the proposed reservoir will be used on some 30,000 acres of patented land near Reno, Nevada, embraced in the

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<sup>1</sup> Construction for additional storage on the Newlands Project was initiated under the provisions of the National Industrial Recovery Act of 1933, but the funds were transferred to the *Truckee River Storage Project* on February 5, 1934.

Washoe County Water Conservation District, which is preparing to enter into a contract with the United States to repay the cost of the work over a term of 40 years without interest.

The water supply developed in the proposed reservoir will also benefit the Newlands (formerly Truckee-Carson) irrigation project in Western Nevada, one of the first projects undertaken by the Bureau of Reclamation (then known as the Reclamation Service). The project was authorized in 1903 and construction began in 1904. The water supply is obtained from the Truckee and Carson Rivers with storage in the Lahontan reservoir of 273,000 acre feet capacity. The project has an irrigable area of 87,500 acres included in the Truckee-Carson Irrigation District with which the Government has a contract for repayment of the construction cost. Over 90 per cent of the project construction and operation and maintenance charges due to date has been paid.

There is need of a supplemental water supply upon the lands in these two districts, as for many years losses have been suffered because of an inadequate supply.

The proposed Little Truckee storage reservoir on the Little Truckee River will augment the supply for the lands in the two districts, and in particular will benefit the lands on the Fernley and Swingle benches of the Newlands project. These lands depend upon Truckee River water as they are above the Lahontan reservoir serving other project lands.

This storage will also provide additional water urgently needed for irrigated lands in the Truckee Meadows near Reno, and afford a better water supply for the cities of Reno and Sparks.

Studies which have been made by the Bureau of Reclamation indicate that the water supply is adequate for the proposed reservoir, that the construction of the proposed dam is feasible from an engineering standpoint, that the dam can be built within the cost of \$1,000,000 which the Washoe County Water Conservation District is to agree to pay. The reservoir will not be constructed if, upon calling for bids, it is found that the cost of the dam will probably overrun \$1,000,000, unless the Washoe County Water Conservation District by contract increases the amount of its obligation to cover the additional estimated cost.

The land in the Washoe County Water Conservation District will be appraised, subject to Departmental approval, to determine its present value without enhancement of valuation due to the prospect of an additional water supply from the proposed storage reservoir. Water will not be delivered to any landowner from such proposed reservoir unless he adopts the appraised valuation by agreeing that if his land is sold above such valuation, one-half of the excess will be paid over for the benefit of the project. Large landowners (that is owners of more than 160 irrigable acres per single ownership) will be required to dispose of the excess area at or below prices fixed by an approved appraisal, if project water is furnished for the excess area.

I find that the project is feasible, that the land watered thereby is adaptable for actual settlement and farm homes, and that the landowners benefited by the project will be able from the agricul-

tural produce of the lands irrigated by the reservoir to return the cost of the development to the United States.

I recommend that the project be approved and that necessary authority be issued to this Department to make contracts for the construction of the project and to proceed with the work.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved September 21, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# TUCUMCARI PROJECT

THE WHITE HOUSE,  
*Washington, August 2, 1937.*

The Honorable, the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: I am approving, with some reluctance, the enrolled bill S. 2086, "To authorize the construction of a Federal reclamation project to furnish a water supply for the lands of the Arch Hurley Conservancy District in New Mexico."

The necessity for, or desirability of, this legislation is not apparent in view of the statement in the letter of Acting Secretary West which accompanied the enrolled bill, that:

The plans so far made entail a total cost of \$8,278,000, or \$184 per acre, which under present Reclamation laws would render the project infeasible. However, by a revision of plans or by some other means, the repayment of the investment may become possible.

It seems to me that a determination of the feasibility of the project and of the probability of its repayment of construction costs, through the use of funds that are available to the Bureau of Reclamation for such investigations of proposed Reclamation projects, should have been a prerequisite to the consideration of legislation authorizing the construction of the project.

I am persuaded, however, to approve this bill only because of the provision which it contains forbidding the initiation of construction work on the project unless and until you are able to make a finding, under Subsection B of Section 4 of the Act of December 5, 1924, that the project is economically feasible and will in all probability return its construction cost.

In view of the fact that the Reclamation Fund will be exhausted by the end of the present fiscal year and that its income for the next few years will be no more than enough to provide for the projects now under construction, I shall not be disposed to hereafter submit an estimate of appropriation for beginning the construction of the project covered by the enrolled bill until I am thoroughly satisfied that this project is feasible and will repay the cost of its construction.

Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

AMENDMENT OF AUTHORIZATION OF  
ARCH HURLEY PROJECT

An act to amend an Act entitled "An Act to authorize the construction of a Federal reclamation project to furnish a water supply for the lands of the Arch Hurley Conservancy District in New Mexico," approved August 2, 1937 (Public, Numbered 241). (Act April 9, 1938, 52 Stat. 211, Public Law 477, 75th Cong., 3d sess.)

\* \* \* That the Act entitled "An Act to authorize the construction of a Federal reclamation project to furnish a water supply for the lands of the Arch Hurley Conservancy District in New Mexico," approved August 2, 1937 (Public, Numbered 241), is amended to read as follows:

That the Secretary of the Interior is hereby authorized to construct a Federal reclamation project for the irrigation of the lands of the Arch Hurley Conservancy District in New Mexico under the Federal reclamation laws: *Provided*, That construction work is not to be initiated on said irrigation project until (a) the project shall have been found to be feasible under subsection B of section 4 of the Act of December 5, 1924 (43 Stat. 702), but the project may be found to be financially feasible if the Secretary of the Interior finds that the amount to be expended from the reclamation fund can be repaid by the District, and further that the amount of money to be expended from the reclamation fund, plus the amount of money which has been made available from other sources (for the estimated period of construction), equals the estimated cost of construction; (b) a contract shall have been executed with an irrigation or conservation district embracing the land to be irrigated under said project, which contract shall obligate the contracting district to repay the cost of construction of said project met by expenditure of moneys from the reclamation fund in forty equal annual installments, without interest; (c) contracts shall have been made with each owner of more than one hundred and sixty irrigable acres under said project, by which he, his successors, and assigns shall be obligated to sell all of his land in excess of one hundred and sixty irrigable acres at or below prices fixed by the Secretary of the Interior and within the time to be fixed by said Secretary, no water to be furnished to the land of any such large landowner refusing or failing to execute such contract; and (d) contracts shall have been made with all owners of lands to be irrigated under the project by which they will agree that if their land is sold at prices above the appraised value thereof, approved by said Secretary, one-half of such excess shall be paid to the United States to be applied in the inverse order of the due dates upon the construction charge installments coming due thereafter from the owners of said land.

OFFICE OF THE SECRETARY,  
*Washington, October 31, 1938.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The following report on the Tucumcari Irrigation project, in the state of New Mexico, is made to you



under the provisions of Section 4 of the Act of June 25, 1910 (36 Stat. 835).

This section of the Act provides in effect that after the date of said Act, no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat. 388) and Acts amendatory thereof or supplementary thereto, shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, (43 Stat. 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, and that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Other legislation pertaining specifically to this project is the Act approved August 22, 1937 (50 Stat. 557), which was amended by the Act of April 9, 1938 (Public No. 477, 75th Congress). As amended the Act provides:

That the Secretary of the Interior is hereby authorized to construct a Federal reclamation project for the irrigation of the lands of the Arch Hurley Conservancy District in New Mexico under the Federal reclamation laws: *Provided*, That construction work is not to be initiated on said irrigation project until (a) the project shall have been found to be feasible under subsection B of section 4 of the Act of December 5, 1924 (43 Stat. 702), but the project may be found to be financially feasible if the Secretary of the Interior finds that the amount to be expended from the reclamation fund can be repaid by the District, and further that the amount of money to be expended from the reclamation fund, plus the amount of money which has been made available from other sources (for the estimated period of construction), equals the estimated cost of construction; (b) a contract shall have been executed with an irrigation or conservation district embracing the land to be irrigated under said project, which contract shall obligate the contracting district to repay the cost of construction of said project met by expenditure of moneys from the reclamation fund in forty equal annual installments, without interest; (c) contracts shall have been made with each owner of more than one hundred and sixty irrigable acres under said project, by which he, his successors, and assigns shall be obligated to sell all of his land in excess of one hundred and sixty irrigable acres at or below prices fixed by the Secretary of the Interior and within the time to be fixed by said Secretary, no water to be furnished to the land of any such large landowner refusing or failing to execute such contract; and (d) contracts shall have been made with all owners of lands to be irrigated under the project by which they will agree that if their land is sold at prices above the appraised value thereof, approved by said Secretary, one-half of such excess shall be paid to the United States to be applied in the inverse order of the due dates upon the construction charge installments coming due thereafter from the owners of said land. Approved, April 9, 1938.

Approximately 45,000 acres of land lying near Tucumcari, Quay County, New Mexico, are expected to be irrigated under the Tucumcari project. The irrigation plan includes a main canal, 55 miles in length, leading from the Conchas Reservoir to the project

lands, a lateral system to distribute water to the project farms, and a drainage system which will be built as seepage conditions develop.

### WATER SUPPLY

The water supply will be obtained from the Conchas Reservoir which is now being constructed as a flood control project on the South Canadian River by the Corps of Engineers of the War Department. The dam is located immediately below the confluence of the Conchas and South Canadian Rivers, about 35 miles northwest of Tucumcari. Studies based on the water supply records for the last 22 years indicate that there would have been an ample supply for irrigation in all excepting 7 years, in 6 of which there would have been light shortages and a major shortage in 1 year. If found necessary, the shortages could be reduced by pumping from dead storage in the reservoir below the elevation of the outlet works. The state of New Mexico has a filing covering the storage of water in and use of water from the reservoir and will be required to transfer these filings to the Federal Government. A memorandum of understanding also will be obtained with the Corps of Engineers of the War Department regarding the operation of the reservoir for flood control and irrigation purposes.

### ENGINEERING FEATURES AND CONSTRUCTION COSTS

The principal construction features are as follows:

(1) The Conchas dam and reservoir—The dam is a combination concrete and earth embankment structure of 220 feet maximum height and 1,250 feet total length along the crest. A short spillway is located at the main dam across the stream and a higher, longer, emergency spillway is placed at one side. The outlet works will be located approximately 100 feet above the stream bed. The reservoir will extend approximately 14 miles up the Canadian and Conchas Rivers. Its total capacity will be approximately 400,000 acre-feet below the lower spillway, of which 286,000 acre-feet will be available above the irrigation outlet, the remaining 114,000 acre-feet being dead storage.

(2) The main canal, of 700 cubic-feet per second capacity, will extend from Conchas reservoir to the project lands, a distance of approximately 55 miles. The canal structures include several tunnels, to avoid side hill construction or long detours, and numerous siphons crossing deep and wide drainage courses. Under the present plans, there will be 5 tunnels, varying from a few hundred feet up to 9,000 feet in length and more than 30 siphons, several of which are more than a half mile in length.

(3) A distribution system, consisting of laterals of various lengths and capacities, to carry the water from the canals to the farm units.

(4) A drainage system which will need to be started shortly after water is delivered and continue for an indefinite period. The large number of washes, canyons and creeks which traverse the project will eliminate the necessity for constructing an extensive drainage system. However, many of the creeks on the project which are dry most of the time will be turned into live streams by seepage and thus require the building of many bridges.

The estimated costs of construction are as follows:

Examination and surveys.....	\$100,000
Main canal .....	6,605,000
General lateral system.....	675,000
Drainage .....	450,000
Other costs .....	325,000
Total construction cost.....	8,155,000

#### LAND PRICES AND ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

Most of the lands were homesteaded about 1907 in 160-acre tracts. A large portion of the area was once dry farmed but, when this did not prove successful, much of it was restored to native grasses for pasture use. The lands are held in tracts ranging from 20 to 7,000 acres. Approximately 500 settlers will be needed on account of the reduction of excess holdings to units of 160 acres or less and the occupation of the lands which will not be farmed by the owners.

The project is located in the heart of a large area devoted to the production of livestock. Irrigation would aid materially in stabilizing this industry and would provide a source of income in an area which is greatly in need of revenues from sources other than those now available. Under ordinary conditions, there are 50,000 head of cattle and 10,000 head of sheep in Quay County and an additional 100,000 head of cattle and 20,000 head of sheep in the adjacent portions of San Miguel and Harding Counties. It is believed, therefore, that the project will find an exceptionally good market for hay and grain products, not only locally but also in the Panhandle areas of Texas and Oklahoma. Furthermore, the project would be the only intensive farming area on the Southern Pacific and on the Chicago, Rock Island and Pacific Railways between central Kansas and the Rio Grande Valley, a distance of approximately 500 miles. Therefore, a good market should be available for the miscellaneous fruits and garden truck which can be grown in this area.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The estimated cost of constructing the irrigation features to serve an area of 45,000 acres is \$8,155,000. Basing the repayment

construction costs on a 40-year period without interest, and the operation and maintenance costs on the charges now paid on similar projects, the annual per acre costs would be as follows:

Repayment of construction charges.....	\$4.53
Operation and maintenance.....	1.25
Total annual charge.....	<u>5.78</u>

From the experience of the Bureau of Reclamation on projects where weather, crop and market conditions are similar, it is believed that a charge in excess of \$4.00 per acre per annum will be burdensome to the landowners. Therefore, the construction charge repayment for irrigation use should be held at a figure not greater than \$2.75 per acre per annum. This would provide \$4,950,000 of the construction cost.

The Arch Hurley Conservancy District, comprising all the lands in Quay County that would be benefited by the project, including the City of Tucumcari of 4,100 population, has been established under the provisions of Chapter 30 of the New Mexico Statutes, Annotated, Compilation of 1929, and acts amendatory thereto, including Chapter 50 of the Laws of 1931 and Chapter 37 of the Laws of 1934. Funds which are expected to be available to the District, other than those raised by special assessment, are:

- (1) An organization fund not to exceed 6 mills on each dollar of assessed valuation, for the first year only.
- (2) A guaranty fund not to exceed 2 mills on each dollar of assessed valuation, within the District, levied each year.
- (3) A conservation and development fund, not to exceed 10 percent of the special benefits appraised and confirmed.

It has been estimated that the increased valuation of the City of Tucumcari from development of the project would amount to \$3,500,000. On this basis, the 10 percent conservation and development fund would yield \$350,000 or \$8,750 annually for 40 years. The guaranty fund, permitting a levy of 2 mills on each dollar of assessed valuation, would net \$7,000 annually on a valuation of \$3,500,000.

Additional revenue might be received from the sale of water to the Southern Pacific Railroad and to the City of Tucumcari. Records indicate that the railroad hauls approximately 23,000,000 gallons of water into this region in one year, at an estimated cost of \$23,000. It is assumed that the railroad company could well afford to pay \$11,500 per year for a water supply. The City of Tucumcari has spent approximately \$25,000 in one year for the maintenance of a water system and it is assumed that the city could afford to pay \$6,000 per annum for delivery of water for municipal use.

Assuming that contracts could be negotiated for the use of water for irrigation, domestic and industrial purposes, as described above, the following amounts would be repaid each year:

Irrigation use, 45,000 acres at \$2.75 per acre.....	\$123,750
Conservancy funds, City of Tucumcari.....	15,750
Water supply for railroad.....	11,500
Water supply for Tucumcari.....	6,000
Total .....	<u>157,000</u>
Amounting in a period of 40 years to.....	6,280,000

Some of these proposed contracts might not materialize; therefore, it is believed that an amount of \$2,500,000 should be made available on a non-reimbursable basis to assure the financial success of the project.

#### FINDING REGARDING FEASIBILITY OF PROJECT

The Second Deficiency Appropriation Act for the fiscal year 1938 (Public No. 723, 75th Congress), made available the sum of \$250,000 for commencing construction and on September 24 the Public Works Administration allotted \$2,500,000 for the project.

The Act of April 9, 1938 (Public No. 477), contains the following stipulation: "The project may be found to be financially feasible if the Secretary of the Interior finds that the amount to be expended from the Reclamation Fund can be repaid by the District and, further, that the amount of money to be expended from the Reclamation Fund, plus the amount of money which has been made available from other sources (for the estimated period of construction), equals the estimated cost of construction." The Public Works Administration has made an allotment sufficient to pay the non-reimbursable costs of the project and the Congress has made an appropriation from the Reclamation Fund to initiate the project.

The foregoing data justify the conclusion that the project is feasible from an engineering standpoint; that it is adaptable for settlement and farm homes; and that it is economically feasible on the basis of repayment of \$5,655,000. I, accordingly, so find and declare. I recommend that construction of the Tucumcari project be undertaken as soon as compliance is obtained with the remaining provisions of the act of August 2, 1937 (50 Stat. 557), as amended by the act of April 9, 1938 (Public No. 477, 75th Congress).

Sincerely yours,

(Signed) HARRY SLATTERY,  
*Acting Secretary of the Interior.*

Approved November 1, 1938.

(Signed) FRANKLIN D. ROOSEVELT,

# UMATILLA PROJECT<sup>1</sup>

PORTLAND, ORE.,  
October 27, 1905.

CHIEF ENGINEER,  
*U. S. Reclamation Service, Washington, D. C.*

SIR: We, the Board of Engineers, appointed by you to report upon the various Reclamation Projects in the State of Oregon, excepting the Klamath Project, have the honor to report as follows:

*Projects in the interior.*—We find that measurements of streams on which projects in the interior of this State are dependent, have extended over too short a period of time to afford sufficient knowledge of the water supply available. We also find that present lack of transportation facilities will cause high cost of construction and uncertain value of lands and its products.

*Owyhee project.*—We find that the Owyhee Project, contemplating the irrigation from the Owyhee River of about 60,000 acres west of the Snake River and south of the town of Arcadia, requires an expenditure per acre in excess of what the land at present is likely to bear successfully.

*Malheur project.*—We find that the Malheur Project, contemplating the irrigation of 100,000 acres west of the Snake River north of Arcadia, may be estimated to cost, inclusive of ten years' maintenance, \$40.00 for land irrigated by gravity, and \$42.00 for land irrigated by pumping, which we consider well within the value of the land.

We find that many land owners under the Malheur Project consider the estimated charge per acre too high in comparison with the ability of settlers to pay.

We further find that Charles Altschul, representing the Willamette Valley and Cascade Mountain Road Grant owns about one quarter of the entire area proposed to be irrigated under this project, and that C. E. S. Wood, acting on behalf of Charles Altschul, expresses the opinion that not over two fifths of this land

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<sup>1</sup> The *Umatilla Project* was found feasible under the original Reclamation Act prior to its amendments.

Under the National Industrial Recovery Act of 1933, the reconstruction of canals on the *Stanfield Division* was approved.

The *Birch Creek (Feeder Canal)* was constructed under the provisions of the National Industrial Recovery Act of 1933.

will successfully bear the lien to be placed upon it by the estimated water charges. The owner is nevertheless willing to agree to the ultimate sale of all of this land to persons competent to acquire water rights, upon the condition, however, that the time allowed him to consummate the sale shall include the entire time required for construction with an additional allowance of at least fifteen months including a full crop year. We consider this condition contrary to the spirit of the Reclamation Act, first: because it would leave it within the power of the present owner to keep all his lands from being settled upon and reclaimed for a considerable time after water, which must be reserved for such lands, is ready for delivery. Second: because this board can conceive of but one reason for the owner insisting upon such condition, namely: that he may be enabled to reap the benefit of development on adjoining lands under the project, increasing the burden of the purchaser and diminishing the security of the Government.

We, therefore, consider this condition inadmissible and see no reason why the policy of rejecting similar terms of landowners under other reclamation projects should be departed from in the present instance.

*Umatilla Project.*—We find that the Umatilla Project, which was originally intended to water 60,000 acres south of the Columbia River and west of the Umatilla River, as now planned contemplates the irrigation of about 20,000 acres of land east of the Umatilla River; that this land is of excellent quality, has good transportation facilities and is near to valuable markets; that the project is feasible, and that the land when irrigated will be ample security for the money expended on the project. About 8,000 acres of this land is owned by the Maxwell Land & Irrigation Co., who have built a canal system to irrigate its lands with flood waters from the Umatilla River. A proposition has been made by this company to turn over to the United States its irrigation works and water rights and to place its lands under the project and bind itself to the sale of its land, copy of which proposition is attached hereto.

Recommendations: We recommend:

First. That stream measurements in the interior of the State be continued where promising projects exist.

Second. That at the present time no action be taken in regard to the Owyhee Project.

Third. That no action be taken in regard to the Malheur Project until the land owners under said project present satisfactory evidence of their willingness to subscribe their lands, and to have their excess holdings disposed of by the time water may be ready for delivery to settlers competent to subscribe, and that this recommendation be communicated to said land owners at the earliest practicable moment.

Fourth. That the sum of \$1,000,000 be set aside for the construction of the Umatilla Project, and that early action be taken, so that in the event of construction being authorized, water may be ready for delivery during the irrigation season of 1907.

Fifth. That construction of the Umatilla Project be authorized

as soon as at least 15,000 acres of land shall have been pledged to the project.

Sixth. That the farm unit under the Umatilla Project be fixed at 40 acres and that desert claimants be permitted to prove up under the Reclamation Act for a maximum of 160 acres.

Seventh. That the proposition of the Maxwell Land & Irrigation Co. be accepted, provided said Company agrees to sell its excess lands in tracts not exceeding 40 acres.

BOARD OF ENGINEERS,  
(Signed) A. P. DAVIS.  
A. J. WILEY.  
D. C. HENNY.

NOVEMBER 8, 1905.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: The preliminary examinations of the Umatilla Project in Oregon have now been completed and it has been found that a project is feasible involving the irrigation of about 20,000 acres of land east of the Umatilla River.

The land in question is of excellent quality, has good transportation facilities and the opportunities for marketing the crops are excellent. The estimated cost of the project is about \$50.00 per acre, and the land will be ample security for the money expended.

About 8,000 acres of this land is owned by the Maxwell Land & Irrigation Company which has partially completed the construction of a canal system to irrigate its lands with the flood waters of the Umatilla River. A proposition has been made by this Company to turn over to the United States its irrigation works and water rights and to place its lands under the project and bind itself to make sale thereof in such manner as to conform to the provisions of the Reclamation Act. A copy of this agreement is herewith transmitted and its terms are reasonable and satisfactory.

The project will involve the expenditure of about \$1,000,000, and this sum would be available from the unassigned allotment, page 3 of my letter of October 14, 1905, as to the condition of the Reclamation fund.

The agreement of which the enclosure is a copy has been executed by the Company but has been returned for some technical corrections and a new description of the lands specified in paragraph 5, so that it shall be more definite. The copy herewith will



suffice for the consideration of its conditions in order that the Department can pass upon the proposition.

It is recommended that the sum of \$1,000,000 be set aside for this project and that authority be given for proceeding with the project with a view to construction.

The works can be completed so that water may be delivered at some time during the irrigating season of 1907, if work is undertaken promptly. An early decision upon the recommendation will involve the saving of fully a year in the irrigation of these lands.

Very respectfully,

(Signed) CHARLES D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, December 4, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a communication dated November 8, 1905, relative to the Umatilla reclamation project in Oregon, you recommended that the sum of \$1,000,000 be set aside from the Reclamation fund for the construction of this project and that authority be given for proceeding with the project with a view to its construction. With your said communication you enclosed for the consideration of the Department copy of an agreement with the Maxwell Land & Irrigation Company concerning the purchase of its canal system.

In view of certain questions presented by that agreement it was returned to you under date of November 11 for further report upon certain specific propositions indicated in the reference.

You replied thereto under date of November 16, and the whole matter was referred to the Assistant Attorney General for an opinion upon the questions presented by said agreement, where it is now pending.

I am now, however, in receipt of your communication of the 1st instant relative to said project which presents it in a new aspect and calls attention to certain phases of the situation to which my attention has not heretofore been directed, one of which is that delay of definite action in regard to this matter will mean complication of the situation by the undoubted appearance and acquisition of private rights that would prohibit the future consideration of what you insist is an attractive proposition from a reclamation standpoint.

The Department can not and will not at this time attempt to commit itself in regard to the questions pending before the As-

sistant Attorney General on the proposed agreement with the Maxwell Land & Irrigation Company, heretofore submitted, nor to indicate what its ruling on those questions will be, nor to in any way hamper or embarrass their consideration and adjudication, but after further and more careful consideration of this matter it is believed that affirmative action may be taken in regard to this project without doing any of the things indicated concerning the legal questions in reference thereto, now pending before the Department. You are therefore advised as follows:

Your recommendation of November 8 is hereby approved to the extent that \$1,000,000, or so much thereof as may be necessary, is hereby set aside from the Reclamation Fund for this project, and you are authorized to proceed with it with a view to the early construction thereof, provided, however, that this action is based upon and is subject to the following conditions:

First: That a satisfactory agreement or agreements be obtained from the owners of private property for the acquisition of such properties as may be necessary or required for the proper construction of the project, and that no part of the moneys hereby appropriated shall be expended for construction purposes or for the acquisition of any canals, laterals or other properties until such satisfactory agreement or agreements have been obtained and approved by the Secretary of the Interior.

Second: That a sufficient acreage of land under the project be pledged to secure the return to the Reclamation Fund of the moneys hereby appropriated therefrom.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

# UNCOMPAHGRE PROJECT<sup>1</sup>

OFFICE OF THE SECRETARY,  
*Washington, November 1, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The Supreme Court of the United States in the Parker Dam decision (United States v. State of Arizona, 295 U.S. 174) indicated that Section 4 of the Act of June 25, 1910 (36 Stat., 835) is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Uncompahgre Project, Colorado, is made to you under said statute of 1910 and under sub-section B of Section 4 of the Act of December 5, 1924 (43 Stat., 701).

Section 4 of the Act of June 25, 1910, provides, in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388), and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the Project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Sub-Section B, Section 4, Act of December 5, 1924 (43 Stat., 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

Under date of December 7, 1933, the Federal Emergency Administrator of Public Works approved allotments of \$325,000, \$400,000, \$2,000,000 and on August 6, 1935, an allotment of \$500,000 respectively, for the rehabilitation of the South Canal and the making of general repairs and replacements to other portions of the irrigation system constituting the Uncompahgre Project, Colorado, constructed by the United States Bureau of

<sup>1</sup> The *Uncompahgre Project*, originally called the Gunnison Project, was found feasible under the original Reclamation Act prior to its amendments. For the Director's finding of feasibility, and the Secretary's authorization (pages 601, 609).

The rehabilitation of the project and the construction of *Taylor Dam* initiated by the National Industrial Recovery Act of 1933.

Reclamation some years ago, the lining of the Gunnison Tunnel of said Uncompahgre Project, the construction of the Taylor Park reservoir in connection with said project, and the construction of drainage works for the drainage of the lands of said project now water logged or in danger of becoming water logged. In further explanation of the allotment of \$500,000 for the construction of drainage work you are advised that it is in fact only a re-allotment of funds which will be saved from the allotment for the Taylor Park Reservoir and not required in its construction.

The supplemental waters to be developed by the construction of the Taylor Park Reservoir will be used for the irrigation of the lands of said Uncompahgre Project consisting of about 105,000 acres of irrigable lands which in most years need a supplemental supply during the latter part of the growing season.

The rehabilitation of the project irrigation system, the lining of the Gunnison Tunnel and the construction of the drainage works are for the purpose of putting the project in shape to repay the construction cost to the United States including expenditures made under the allotments above mentioned.

Studies and investigations made by the Bureau of Reclamation indicate that the water supply is adequate for the purpose intended, that the construction of the reservoir and drainage works, the lining of the Gunnison Tunnel, the rehabilitation of the South Canal and the making of general repairs and replacements to other portions of the project irrigation system are feasible from an engineering standpoint and that all of the work can be completed within the total of the allotments mentioned.

I find that the works are feasible, that the lands benefited thereby are adaptable for actual settlement and farm homes, that the lands are in need of the additional water supply which will be supplied, that the project will probably return the cost thereof to the United States, and that there is little probability in an established irrigation community such as this of the proposed construction work leading to an inflationary upward movement in land prices, which might prove detrimental to the project by bringing in new settlers who would be unable both to pay the inflated prices for their land and to meet their construction charges.

I recommend that the present project consisting of the construction of supplemental works, namely, the Taylor Park Reservoir, the rehabilitation of the South Canal, on which work has already been started, the lining of the Gunnison Tunnel and the drainage works, on which work has not yet started, be approved, that any steps or action heretofore taken toward the construction of the same be ratified and that authority be given to this Department to proceed with the work and to make contracts and to take any necessary action to construct and complete the works.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

# VALE PROJECT

OFFICE OF THE SECRETARY,  
*Washington, October 20, 1926.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: Section 4 of the Act of June 25, 1910 (36 Stat., 835), provides in effect that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924 (43 Stat., 701), provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features requiring investigation and report under this subsection will be discussed in connection with the Vale project in Oregon in the order in which there presented as follows:

## WATER SUPPLY

*Source.*—Warmsprings Reservoir of the Warmsprings Irrigation District on the Malheur River. The water and storage rights necessary for the development of the project would be purchased at cost from the Warmsprings Irrigation District. A portion of the purchase price for storage, \$150,000 to \$200,000, is to be expended in the construction of a drainage system for the Warmsprings Irrigation District. This district is at present in serious financial difficulties due, mostly, to the development of seepage which has not been remedied because of a lack of finances.

*Shortages.*—Past records indicate that with the storage now available shortages will occur in the drier years. Provision has been made in the contract for sufficient funds to provide additional storage by raising the Warm Springs Dam, should these shortages prove serious.

*Storage capacity.*—The Warm Springs Reservoir has a normal capacity of 170,000 acre-feet. By the installation of crest-control gates the reservoir surface may be raised 4 feet, thus providing additional capacity which may be utilized as hold-over storage. This would give a total reservoir capacity of 190,000 acre-feet.

### ENGINEERING FEATURES

*Storage.*—Addition of crest-control gates to present dam at Warm Springs Reservoir.

*Diversion.*—A diversion weir about 12 feet high and 150 feet long will be required on the Malheur River. Location will be about one mile west of Namorf station on the Oregon Short Line (Ontario-Crane branch).

*Main Canal.*—Located on north side of river for one mile. Near Namorf station the canal crosses the river by a steel flume on a steel bridge. It then parallels the river for four miles and again crosses the river by a circular concrete siphon. At two intermediate points steel flumes would be required. On the remainder of the canal line within the canyon there would be 9,715 feet of concrete bench flume.

*Power and pumping plants.*—On the Harper division a pumping plant is planned to provide water for about 2,000 acres, power being secured by dropping water back to the river.

*Drainage.*—Bench lands have comparatively good natural drainage, with frequent water courses for removing waste water. Following irrigation a moderate amount of drainage will be needed.

### COST OF CONSTRUCTION

#### COST BY FEATURES

Storage .....	\$690,000
Main Canal .....	2,500,000
Laterals .....	280,000
Drainage .....	120,000
Total .....	<hr/> 3,590,000

### LAND PRICES AND PROBABLE COST OF DEVELOPMENT

The project lands have been appraised by a board of three members, one appointed by the Department, another by the District, and the third selected by these two. Their report, approved by me, establishes an average value of \$11 per acre for the irrigable land, without improvements. Land too high in elevation to be irrigated, or of uneven surface, was appraised as low as \$1.25

an acre. Contracts will be made with the landowners for sales to settlers at not to exceed these prices to prevent speculation. Nearly 40 % of the project lands are owned by two companies.

About 15 % of the lands are still held by the Government and would be allotted to selected settlers.

### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering and economic standpoint, and I accordingly so find and declare.

### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The Vale project is based on the purchase of one-half the Warm-springs Reservoir. This enables 32,000 acres in the Warm-springs District to be reclaimed through drainage and will enable the 500 settlers who have farms in this district to resume their profitable cultivation. The stored water which is to be purchased is to be used to irrigate land in the vicinity of Harper and Vale, Oregon, by a canal diverting from the Malheur River about 10 miles above Harper and paralleling the Malheur River and Willow Creek to Jamieson, Oregon. It will supply water to 28,350 acres classed as susceptible of profitable cultivation under irrigation. About 2400 acres in the vicinity of Jamieson and 400 acres near Harper now receiving an inadequate water supply are included in the project. The average construction cost is about \$125 an acre.

The climate and soils of the project are adapted to the production of all temperate zone crops and fruits with yields equal to those obtained on the Boise project. The main crops that can be profitably grown under irrigation are: Alfalfa, the small grains, Indian corn, Red clover, potatoes, and many others of minor importance. Topography is generally excellent. A soil survey by the Bureau of Soils indicates deep and fertile soils over the greater part of the project. A detailed classification of the land on the basis of three classes of profitably productive land indicates one-half of all the land to be of the first class and the balance divided between second and third class. Branch lines of the Union Pacific Railroad are at a maximum distance of four miles from the irrigable land. The town of Vale, county seat of Malheur County, Oregon, especially will benefit by the construction of this project, and several smaller communities will grow and profit thereby.

The 28,350 acres requiring a full water supply is in its natural state adapted only to grazing stock and even then only for a short period in each year, due entirely to the low rainfall in that region. Dry farming has been tried but failed. With an ample water supply for irrigation this area will sustain a highly intensified agriculture and make homes for from 400 to 500 additional families. In addition to this it will rehabilitate the Warm-springs Irrigation District, having an irrigable area of about 32,000 acres, thus

saving the investments already made by many American farmers therein.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

The next declaration required is that the cost of construction will probably be returned to the reclamation fund. This is interpreted to mean that it will be returned within the period fixed in the contract with the Vale Oregon Irrigation District, which is in forty years from the time the public notice that the works are completed is issued by the Secretary.

The average construction cost is estimated at about \$125 an acre, making the yearly construction payment about \$3.10 an acre. The estimated yearly crop income is \$37.50 an acre. It would seem that this would enable construction and operating cost to be paid without hardship to the settlers.

Some of the causes of delinquencies in repayment which have occurred on existing projects will be averted on the Vale project. One is the injurious effect of land speculation, which will be prevented by requiring the large private land holdings to be subdivided and sold to settlers at a fair price. Provision will be made for giving the farmers practical advice in farm development and in working out a crop program. Settlers on the public lands of the Vale project will be selected, as provided in recent legislation. Such selection is destined to be an important factor in the development and solvency of future projects. It is recognized that the feasibility of reclamation depends on securing suitable settlers. This fundamental requirement for the success of Federal reclamation has been stressed by this Department during the past two years. It is a vital element in all calculations and forecasts.

Settlers will begin the farm development of this project under the following favorable conditions: Increase in agricultural production in the Nation is not keeping pace with increase in population. They will realize at the outset that their farms must be intensively cultivated and will be helped to organize for cooperation in production and marketing.

The favorable conditions heretofore recited and the newly established policy of the Bureau justify the belief that this project will return the cost thereof.

Because this is regarded as one of the projects best suited to the needs of settlers and appropriate for development under the reclamation law, I recommend its approval and the issuance of the necessary authority to this Department to make contracts for its construction, and to proceed with the work.

Very truly yours,

(Signed) HUBERT WORK.

Approved October 21, 1926.

(Signed) CALVIN COOLIDGE,  
*President.*



# VALLEY GRAVITY CANAL AND STORAGE PROJECT

INTERNATIONAL BOUNDARY COMMISSION,  
UNITED STATES AND MEXICO, UNITED STATES SECTION,  
*El Paso, Tex., February 3, 1940.*

To: The American Commissioner, International Boundary  
Commission, United States and Mexico  
From: Conference of Engineers  
Subject: The Valley Gravity Canal and Storage Project (Federal Project Number 5.)

1. Pursuant to your Memorandum dated December 27, 1939, the Conference of Engineers convened in the offices of the International Boundary Commission, United States and Mexico, in El Paso, Texas, on January 22, 1940, to review the investigations and report on the proposed project to provide off-river storage and a domestic and irrigation water supply for the Lower Rio Grande Valley, Texas.

2. On February 13, 1939, after a study of various plans which had been suggested for providing water storage for the Lower Rio Grande Valley, the Conference of Engineers submitted a preliminary report recommending the elimination of certain of these plans and designating others for further study and more detailed surveys and geological examinations. The Conference has met on two occasions since that time to review and report to you on the progress of the investigations. These reports are dated July 1, 1939 and December 11, 1939.

3. For the instant meeting of the Conference there has been made available a report prepared by the engineering staff of the United States Section of the International Boundary Commission, United States and Mexico, summarizing the detailed engineering and geological investigations which have been conducted during the past year and recommending a plan for the Valley Gravity Canal and Storage Project.

4. From the knowledge of the investigations and a review of the basic data and staff report you specifically requested that definite recommendations be made where appropriate, as to the following:

(a) The feasibility of off-river storage as one feature of a solution of the water-supply problems of the Lower Rio Grande Valley.

(b) The project as recommended to be constructed, with a brief description of its major features.

(c) The estimated cost of the proposed project.

(d) The construction program and order in which the various features should be built.

(e) Conclusions as to the benefits to be derived from the construction of the project.

(1) Domestic water supply.

(2) Irrigation.

(3) Flood control.

(4) Other benefits.

(f) If the project is constructed by the United States, what portion of its cost is properly reimbursable? Tentatively distribute the reimbursable costs.

(g) Outline a plan of operation for the project, with consideration for the international problems on the Rio Grande.

(h) Any additional investigations or studies which should be made before the project is constructed.

5. Responding to the request and instructions contained in your memorandum we have the honor to present the following report. The report of the engineering staff of the Commission is appended.

\* \* \* \* \*

#### RECOMMENDATIONS

41. The Conference recommends that:

(1) The Valley Gravity Canal and Storage Project as outlined in this report be adopted, and that its construction be authorized.

(2) The United States construct, own, operate, and maintain the project.

(3) The construction of the project not begin until the owners of eighty (80%) percent of the lands in Area A enter into a contract with the United States for the building and financing of the project on the basis set forth in paragraphs 36 to 40 inclusive of this report.

(4) Any necessary State or District action be obtained before the construction program is begun.

(5) Work be prosecuted so as to insure the completion of the features needed for the supplying of water to project Area A within 4 years after the work begins.

(6) Provision for upstream storage reservoirs be made and their construction undertaken as soon as practicable.

(7) The portion of the cost of construction of the reservoirs set forth in paragraph 34 of this report be reimbursable by the project water users.

(8) The project water users pay the annual cost of operation and maintenance of all features of the project except the power plant and except that portion of the upstream storage works devoted to purposes other than supplying water to the project.

(9) Following the authorization of the project, the sum of \$250,000 be made available for the preparation of the construction plans.

(10) An appropriation of \$10,000,000 be made to meet the estimated cost of the first year's construction.

(11) The current investigations and studies of upstream reservoir possibilities be continued.

Respectfully submitted,

(Signed)

C. M. AINSWORTH,  
*Consulting Engineer.*

J. L. BURKHOLDER,  
*Senior Engineer.*

ROBERT J. CUMMINS,  
*Technical Adviser.*

J. L. LYTEL,  
*Project Engineer.*

E. N. NOYES,  
*Technical Adviser.*

ALFRED TAMM,  
*Consulting Engineer, Lower Rio Grande Water  
Conservation Association.*

R. J. TIPTON,  
*Technical Adviser.*

BEN F. WILLIAMS,  
*Technical Adviser.*

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
*Washington, May 15, 1940.*

*Memorandum for the President.*

Subject: H.R. 9442—Authorizing the construction, operation and maintenance of a project for flood control, and for the conservation, regulation and utilization of the waters of the Rio Grande, and authorizing appropriation for that purpose.

On May 9, 1940, you referred to me a communication from Under Secretary Welles with reference to the Valley Gravity Canal and Storage Project for domestic and irrigation water supply, Lower Rio Grande Valley, Texas.

On September 27, 1938, you authorized an expenditure of \$130,000 from funds appropriated to the Public Works Administration for the purpose of making an engineering investigation and study to determine the feasibility and best means of effecting flood control and conservation of waters on the Rio Grande between La-

redo, Texas, and the Gulf of Mexico, and a similar investigation and study on the Rio Grande between Old Fort Quitman and Laredo, Texas. On June 20, 1939, an additional allotment of \$75,000 for the same purpose was approved. The report of the Commission was filed in January 1940, and H.R. 9442 has been introduced to carry out the findings of the Commission.

The project is to provide an adequate water supply for irrigation and domestic purposes for about 250,000 people living in the Lower Rio Grande Valley, who have invested more than \$200,000,000 in property in that area.

The inadequate normal flow of the Rio Grande River has been greatly reduced by the construction in Mexico of dams impounding more than 5,000,000 acre-feet of water. Of the four dams involved, three are actually now impounding water and one, with a capacity of 1,750,000 acre-feet, is more than 50 percent completed and is being rushed to completion.

The Commission has endeavored to interest officials of Mexico in a dam across the river, but has been unsuccessful in its efforts.

The project as recommended by the Commission, will involve an expenditure of \$59,643,000, including supplemental storage and the installation of a hydroelectric plant having an annual output of 100,000,000 kilowatt hours of electric energy. If the estimated value of electrical energy to be developed is capitalized at 3½ percent, the total cost of the project is reduced by \$9,275,000, leaving an estimated net cost of \$50,368,000.

On April 23, 1940, the Secretary of State transmitted to this office, in accordance with established procedure, his proposed favorable report on H.R. 9442.

On May 7, 1940, the First Assistant Secretary of the Interior transmitted a proposed report on H.R. 9015, a bill of similar purpose, in which he proposed a substitute bill.

I have sought the views of the National Resources Planning Board and received from the Chairman of that Board on May 11, 1940, a communication in which it is stated that the Board has hurriedly reviewed the proposal but has not received a detailed engineering appraisal. Mr. Delano states that the review shows that the project, if constructed, would be in harmony with the contemplated plan of the Drainage Basin Committee for irrigation, flood control and hydroelectric power generation in the Lower Rio Grande, and that in major respects the legislation is desirable. The Board, however, raises the question of whether, since the local benefits are estimated to be in excess of \$130,000,000, the entire cost of the project—or at any rate more than the bill recovery of \$13,841,000, including \$5,000,000 for supplemental storage—should not be reimbursed.

The Board also raises questions with reference to the policy to be followed in the marketing of electrical energy and the desirability of providing authority for the construction of transmission lines for the purpose of marketing power.

The Secretary of the Interior points out that the project primarily is a reclamation project and should be built by the Bureau of Reclamation. Section 3 of H.R. 9442, however, provides for the

recovery of \$8,841,000 "together with interest during construction and interest on the unpaid balance thereof computed at the rate of 3 per centum per annum, to which shall be added the sum of \$5,000,000 for upstream supplemental reservoirs, when such reservoirs are built." The bill further provides that the annual repayment charge for the reimbursable portion of the project cost plus operation and maintenance shall be not more than 50 cents per acre-foot of water delivered prior to construction of supplemental reservoirs, and not more than 70 cents per acre-foot of water delivered subsequent to the building of supplemental reservoirs.

In his letter of May 8 addressed to you, Mr. Welles indicates that Representative Milton H. West and others have from time to time called attention to the "imminent danger that American citizens deprived of water and seeing their families threatened with ruin may cross the border into Mexico and destroy one of the large Mexican diversion or storage facilities, thus creating an international incident having far reaching reverberations."

This project appears to be a worthy one and eventually should be undertaken. If the international aspect of the situation is overcome through the construction of facilities on the American side of the stream, the project properly should be constructed by the Bureau of Reclamation rather than by the State Department. It seems to me, however, that in view of the failure to provide for the reimbursement of more than \$13,841,000 (including the \$5,000,000 for supplemental storage) of the cost of the project, and in particular because of the European situation, the initiation of the project should be held in abeyance, and that the legislation should be considered as not in accord with your program at this time. If you concur in this view, appropriate letters of advice will be transmitted to the Secretary of State and to the Secretary of the Interior.

(Signed) HAROLD D. SMITH,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, May 27, 1940.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: You have referred to me a memorandum dated May 15, 1940, from Director Smith of the Bureau

of the Budget, concerning H.R. 9442, which authorizes the construction and operation of a project for flood control on the Rio Grande below Fort Quitman. Mr. Smith has summarized the reports made by the Department of State and the Department of the Interior, and suggests that the project should not be considered to be in accord with your program at this time.

The report on this bill submitted a substitute draft which would authorize the Bureau of Reclamation to perform this construction, and it eliminated the definite allocation of costs which is proposed in H.R. 9442, and also removed the limitation of a maximum amount per acre assessable for repayment from local beneficiaries. This Department was not sufficiently informed to pass judgment on the allocation and it appeared desirable to review the plans before construction was finally started. The Bureau of Reclamation is somewhat familiar with the conditions on this part of the Rio Grande, through reports made some years ago. There is no question that some means of insuring the security of the American settlement must be found, and this general plan seems to be adequate for that purpose. The International Boundary Commission has been unable to negotiate a treaty with Mexico, and the offstream reservoirs proposed by the Commission would adequately serve the existing area.

As the Director of the Budget indicates, the policies governing the construction and operation of the proposed project would be exactly in accord with general reclamation policies, except for the international situation. This, of course, should be handled by the Department of State. The substitute bill proposes that all plans be approved by the Department of State, and thus safeguards the international requirements.

I would favor an early authorization of the construction of the project if the budgetary limitations will permit, but I see no reason for assigning a reclamation project to the Department of State.

Sincerely yours,

(Signed) E. K. BURLEW,  
*Acting Secretary of the Interior.*

## INTERIOR DEPARTMENT APPROPRIATION ACT OF 1942

[Extracts from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1942, and for other purposes. (Act June 28, 1941, 55 Stat. 303 and 338-339, Public Law 136, 77th Cong., 1st sess.)

\* \* \* That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the De-

partment of the Interior for the fiscal year ending June 30, 1942, namely:

\* \* \* \* \*

Valley Gravity Canal and Storage Project, Texas: For the completion of investigations and commencement of construction of the Valley Gravity Canal and Storage Project, Texas, in substantial compliance with the engineering plan described in a report dated February 3, 1940, entitled "Report of Conference of Engineers to the American Commissioner, International Boundary Commission, United States and Mexico, on the Valley Gravity Canal and Storage Project (Federal Project Numbered 5)" and report appended thereto, \$2,500,000, to be immediately available and to remain available until expended: *Provided*, That said sum shall be available to the President for allocation in accordance with the act entitled "An act to amend the act of May 13, 1924, entitled 'An act providing for a study regarding the equitable use of the waters of the Rio Grande', and so forth, as amended by the public resolution of March 3, 1927," approved August 19, 1935: *Provided further*, That from said sum expenditures may be made for personal services in the District of Columbia (not exceeding \$15,000), and in the field, for the payment of fees for professional services, including experts, engineers, and attorneys, and for all other objects of expenditure as specified for projects hereinbefore in this act under the caption "Bureau of Reclamation," under the headings "Salaries and expenses" and "Administrative provisions and limitations," but without regard to the amounts of the limitations therein set forth: *Provided further*, That of said sum \$250,000 shall, upon approval by the President of an allocation therefor, be available to the Secretary of State (acting through the American Commissioner of the International Boundary Commission, United States and Mexico) for continuing the investigations authorized by such act of August 19, 1935: *Provided further*, That the Secretary of State, with the approval of the President, shall designate the features of the project which he deems international in character, and shall direct such changes in the general project plan as he deems advisable with respect to such features; and the features so designated shall be built, after consultation with the Bureau of Reclamation as to general design, by the American section of the International Boundary Commission, United States and Mexico, and shall be operated and maintained by said Commission insofar as their operation and maintenance in such manner is, in the opinion of the Secretary of State, necessary because of their international character. The construction, operation, and maintenance of such project shall be pursuant to the Federal Reclamation laws, except as hereinbefore provided and except that—

(1) In addition to the nonreimbursable allocation to flood control or navigation which may be made by the Secretary of the Interior under Section nine (b) of the Reclamation Project Act of 1939, the President, after consultation with the Secretary of State and the Secretary of the Interior, shall allocate such part

of the total estimated cost of the project as he deems proper to the protection of American interests from drought hazards resulting from the uncontrolled and unregulated flow of the international portion of the Rio Grande below Old Fort Quitman, Texas. Provisions of law applicable with respect to allocations to flood control under Section nine (b) of the Reclamation Project Act of 1939 shall, insofar as they are not inconsistent with the foregoing provisions, be applicable in like manner with respect to any allocation made under this subparagraph; and

(2) All revenues received by the United States in connection with the construction, operation, and maintenance of such projects shall be covered into the Treasury as miscellaneous receipts.



# WEBER RIVER PROJECT

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1926

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1926, and for other purposes. (Act March 3, 1925, 43 Stat. 1141, 1170, Public Law 580, 68th Cong., 2d sess.)

\* \* \* That the following sums are appropriated out of any money in the Treasury not otherwise appropriated, for the Department of the Interior for the fiscal year ending June 30, 1926, namely:

\* \* \* \* \*

The following sums are appropriated out of the special fund in the Treasury of the United States created by the act of June 17, 1902, and therein designated "the Reclamation Fund," to be available immediately:

\* \* \* \* \*

Salt Lake Basin project, Utah, first division: For construction of Echo Reservoir, Utah Lake control, and Weber-Provo Canal, and incidental operations, \$900,000: *Provided*, That any unexpended balance of any appropriation available for the Salt Lake Basin project for the fiscal year 1925 shall remain available during the fiscal year 1926: *Provided further*, That no part of this appropriation shall be used for construction purposes until a contract or contracts in form approved by the Secretary of the Interior shall have been made with an irrigation district or with irrigation districts organized under State law, or water users' association or associations, providing for payment by the district or districts, or water users' association or associations, as hereinafter provided: *Provided further*, That the operation and maintenance charges on account of land in this project shall be paid annually in advance not later than March first, no charge being made for operation and maintenance for the first year after said public notice. It shall be the duty of the Secretary of the Interior to give such public notice when water is actually available for such lands.

THE SECRETARY OF THE INTERIOR,  
*Washington, January 7, 1927.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: I wish to make concerning the First Division of the Salt Lake Basin project, in Utah, the following statement and finding of feasibility:

Section 4 of the Act of June 25, 1910 (36 Stat., 835) provides in effect that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902 (32 Stat., 388) and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, section 4, Act of December 5, 1924 (43 Stat., 701) provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

The various features of the first division of the project requiring investigation and report under subsection B, section 4, Act of December 5, 1924, *supra*, will be discussed in the order in which presented in that subsection, as follows:

#### WATER SUPPLY

##### Source

Weber River. Has a mean annual flow of about 570,000 acre-feet. There is sufficient flood water in the Weber River to fill the Echo Reservoir (which the United States proposes to construct) in most years with holdover from years of large runoff. It will be possible to fill the reservoir on an average of three years out of four based on records for the past twenty years. By exchange of Echo reservoir storage and diversion of surplus Weber River flood waters, about 15,000 acre-feet can be diverted annually from a point on the Weber River above the reservoir to the Provo River by means of a canal through the Kamas Bench. By this means it will be possible to lengthen the flood flow season and increase the low water flow on the Provo River.

##### Storage capacity

The storage capacity of Echo reservoir on Weber River is 74,000 acre-feet.

## ENGINEERING FEATURES

## Storage dam

The proposed dam is to consist of an earthen embankment across Weber Valley about one-half mile above the town of Echo, Utah. The maximum height of the dam will be 125 feet, and its length about 1,800 feet. The face of dam is to be protected by riprap consisting of four feet thickness of dump rock. The spillway capacity is to be adjusted for floods of 15,000 second feet. Outlet works will have a capacity of 1,200 second feet. The embankment will contain about 1,400,000 cubic yards of material.

## Main diversion canal

A diversion canal is proposed to be constructed to conduct the waters of the Weber River across the Kamas Bench to the Provo River system for use on lands in Utah and Salt Lake counties. This canal is to be located about 25 miles upstream from Echo reservoir, and is to be about eight miles in length with a capacity of 210 second feet.

## Laterals

No canals (other than the diversion canal), laterals, or drainage construction is contemplated as a part of the first division of the project, the plan being simply at the present time to supply storage facilities for areas under existing canals in the Weber and Provo River valleys.

## Drainage

No drainage will be provided at this time for the first division.

## COST OF CONSTRUCTION BY FEATURES

Storage dam (including relocation of U.P.R.R. and Lincoln Highway, rights of way, etc.) . . . . .	\$2,700,000
Diversion canal from Weber River to Provo River. . . . .	300,000
Total—First division of Salt Lake Basin project. . . . .	3,000,000

## TOTAL COST

As shown above, the total cost of the first division of this project is estimated to be about \$3,000,000.

## LAND PRICES AND PROBABLE COST OF DEVELOPMENT

The first division of the Salt Lake Basin project will benefit about 80,000 acres of irrigable land in the counties of Summit,

Morgan, Weber, Davis, Wasatch, Utah and Salt Lake, Utah. All of this land is colonized and settled and a supplemental or late season water supply will be provided. The soil consists of loam, clay loam, and sandy loam. Good crops of alfalfa, sugar beets, wheat, fruits, canning produce, and other crops common to this altitude (between 4,000 and 5,000 feet) are raised. Excellent marketing and transportation facilities exist. As an example of farm income, crop values on four typical farms are given:

	Area (acres)	Total crop value	Crop value per acre
1 .....	32	\$2,509	\$72
2 .....	24	1,768	73
3 .....	20	1,143	57
4 .....	26	1,260	49
Average .....	25.5	1,670	65.60

#### FINDING REGARDING FEASIBILITY OF PROJECT

The foregoing data justify the conclusion that the project is feasible from an engineering, agricultural and economic standpoint and I accordingly so find and declare.

#### ADAPTABILITY OF LAND TO SETTLEMENT AND FARM HOMES

The land embraced in the project is of more than average fertility. The area included within the project can be utilized in production of crops and is prepared for the effective application of water. Good yields of all crops grown in this locality are assured. The farmers at present on the lands as a rule have savings and checking accounts in the local banks, are industrious, pay their debts and constitute a solid class of citizens in the State of Utah.

#### PROBABLE RETURN TO RECLAMATION FUND OF COST OF CONSTRUCTION

A contract is about to be entered into with the Weber River Water Users' Association for repayment of the cost of the project on the basis of twenty equal annual instalments. The works can be completed in less than five years, if Congress appropriates the necessary funds, and payments in accordance with the terms of the proposed contract will begin on December 1 of the year in which the Secretary announces the completion of expenditures for the first unit. The average construction cost of this division of the project will probably be about \$40 an acre, making the average yearly payment \$2.00 an acre. To this will be added the annual expense of operation and maintenance.

The total yearly charge will not be greater than the irrigators can pay and it is believed that the additional water supply will increase incomes so as to enable the irrigators to meet the required payments on this project.

The settlers will be under specially favorable conditions to respond to the development due to the increased water supply. The agricultural production in the Nation is not keeping pace with increase in population. These lands must continue to be intensively cultivated and the settlers will be helped so far as practicable to organize for cooperation in production and marketing. The favorable conditions recited justify the belief that this project will return the cost thereof.

Because of the urgent need for a larger water supply by the present settlers on the 80,000 acres to be benefited by the first division of the project and because of the additional development of this area which will ensue from the construction, the project is destined greatly to benefit the Nation. I recommend approval of the first division of the project as outlined and request authority to make contracts for and to proceed with its construction.

Very truly yours,

(Signed) HUBERT WORK.

Approved January 8, 1927.

(Signed) CALVIN COOLIDGE,  
*President.*

# WILLISTON PROJECT

The *Williston Project* was found feasible under the original Reclamation Act; examined and reported upon by the Corps of Engineers, as one of two units of the *Missouri River Pumping Project (Williston and Buford-Trenton)*.

By 1914 most of the water-right applicants were in default. The project never became fully settled and the land owners were not particularly interested in irrigation after it became available. In 1924 the Committee of Special Advisers on Reclamation (Fact Finders Committee) found that the history and prospects of the project did not justify its further operation by the Bureau of Reclamation, and recommended that the project be appraised and sold, and the losses incurred charged to the Reclamation Fund. The Act of May 26, 1926, 44 Stat. 653, authorized the cancellation of all water-right charges and the release of all liens existing against the lands in the Williston Project on account of the water-right charges. Reauthorized as part of the Missouri River Basin Project.

For the Board of Engineers report, the Director's letter to the Secretary and the Secretary's approval of the Williston project, see correspondence dated September 22, 1905, September 28, 1905, January 4, 1906, January 16, 1906, and January 23, 1906, under the Nesson Project. (Page 357).

# YAKIMA PROJECT

NORTH YAKIMA, WASH., *October 16, 1905.*

CHIEF ENGINEER,

*U. S. Reclamation Service, Washington, D. C.*

SIR: We, the undersigned Board of Engineers, appointed to investigate and report upon the Tieton Project, have studied this project as an integral part of the full utilization of the water resources of the Yakima Basin, and have the honor to report as follows:

The Tieton Project contemplates the irrigation of about 24,000 acres of land in the Yakima Valley, near and west of the City of North Yakima, adjoining similar lands, at present under a high state of cultivation. The water is to be taken from the Tieton River, the natural flow of which is at all times sufficient for the requirements of the Project and for the water right of the only canal now taking water from said stream.

The Tieton discharges into the Naches River and the Naches into the Yakima River. The diversion of Tieton waters for this project will effect the supply available for water users below the mouth of the Tieton, and in order to satisfy their existing rights, as based upon the amounts actually diverted during the irrigation season of 1905, we find it necessary to provide a storage of 50,000 acre-feet and consider it advisable to obtain such storage as follows:

50,000 acre-feet in Bumping Lake, on the head-waters of the Naches River and 20,000 acre-feet in either Lake Keechelus, Kachess or Cle Elum on the head-waters of the Yakima River.

We estimate the cost per acre, including ten years' maintenance, on basis of 24,000 acres, of good land under the project at \$55.00, this price increasing if the acreage of good land under the project is found to be less.

We find that much of the land is of excellent quality and well adapted to the production of such high-priced crops as fruit and hops, now being produced in large quantities on the adjoining land. We also find that other portions of the land have hard-pan close to the surface, which leaves some doubt in our minds regarding its productiveness and value as compared with its cost of irrigation. The owners of said land, however, do not regard

this condition as a detriment and are anxious to sign agreements to take water for as much land as they can retain and are willing to sign the usual contracts for the disposal of excess lands. We think it necessary that this matter be passed upon at once by a soil expert, and have taken steps to this end. If as a result of the report of the soil expert the acreage be decreased the cost acre will increase, but we believe that the project will be a feasible one, even at a considerably higher cost per acre than has been above stated on the basis of 24,000 acres.

We find that the summer flow of the Yakima, Naches and Tieton Rivers, during the seasons of 1904 and 1905 was completely diverted by existing canals from the Yakima, Naches and Tieton Rivers.

We are of the opinion that in order to avoid serious complications regarding water rights in the future, and to assure to the United States the unquestioned right to divert Tieton waters and to substitute for same water from storage reservoirs, it is essential before any Project in the Yakima Basin can be undertaken, that practically all the appropriators and users of water in said basin define their respective claims, and that said claims do not in the aggregate exceed the amounts actually diverted during the irrigation season of 1905.

This view has been communicated to the people in interest and strong efforts are now being made by representative water users towards an amicable and satisfactory settlement, so far as the private users are concerned. In this connection it is necessary to bear in mind that there are from 100,000 to 125,000 acres of land bordering on the Yakima River, in the vicinity of North Yakima, and included in the Yakima Indian Reservation. These lands have all been allotted and a small portion of them are under irrigation. The rights of the Indian Reservation to water from the Yakima River have never been adjudicated. During October, 1905, the aggregate diversions of all private irrigators on the Yakima, Naches, and Tieton rivers, averaged 1750 s.f. as compared with 268 s.f. diverted by the Indian Reservation. Lower appropriators secured as injunction during August, 1905, against the Indian officials, maintaining a dam in the Yakima River, and as a result the Indians' diversion was decreased to 147 s.f.

Increased diversion for the Yakima Indian Reservation during the summer months, in years of run-off similar to 1900, 1904, and 1905, would result in a shortage to prior irrigators along the stream, with the effect that land now cultivated would return to its desert state. The people affected would not submit and expensive litigation would be the certain result. We therefore consider it important, that in connection with the definition of claims of other water users, the water rights of the Yakima Indian Reservation be likewise defined, so that interminable and costly litigation may be avoided, and further irrigation development be thus made possible in the Yakima Valley.

We, therefore, recommend that the construction of the Tieton Project be authorized, and that the sum of \$1,000,000 be set aside therefor, subject to the following conditions.



1st. That the report of the Soil Expert be favorable.

2nd. That practically all the private water users on the Yakima, Naches and Tieton Rivers submit to the Secretary of the Interior proof of satisfactory mutual agreement, to limit their respective claims.

3rd. That the land owners under the Tieton Project form a Water Users' Association and the usual contracts be signed for the disposal of practically all the excess land holdings, and that at least 90% of the remainder of the lands be subscribed to the Water Users Association.

We further recommend that the rights to water of the Indian Reservation be defined by the Secretary of the Interior with due consideration to the basis of adjustment adopted by the private water users.

Very respectfully,

(Signed) A. P. DAVIS.  
A. J. WILEY.  
MORRIS BIEN.  
D. C. HENNY.  
JOSEPH JACOBS.

OCTOBER 24, 1905.

The Honorable, the SECRETARY OF THE INTERIOR.

SIR: I have the honor to transmit herewith copy of a report of a board of engineers, dated October 16, upon the Tieton Project in the Yakima Basin, State of Washington. The board recommends as follows:

We therefore recommend that the construction of the Tieton Project be authorized, and that the sum of \$1,000,000 be set aside therefor, subject to the following conditions:

First. That the report of the Soil Expert be favorable.

Second. That practically all the private water users on the Yakima, Naches and Tieton rivers submit to the Secretary of the Interior proof of satisfactory mutual agreement to limit their respective claims.

Third. That the land owners under the Tieton Project form a water users' association and the usual contracts be signed for the disposal of practically all the excess land holdings, and that at least 90 per cent of the remainder of the lands be subscribed to the water users' association.

We further recommend that the rights to water of the Indian Reservation be defined by the Secretary of the Interior, with due consideration to the basis of adjustment adopted by the private water users.

In my letter of October 14 I called attention to the fact that about \$2,500,000 should be provisionally allotted to the State of Washington. Of this amount, \$500,000 has been suggested for

the Okanogan Project, leaving \$2,000,000 for the Yakima Project, which includes this, the Tieton Project.

I respectfully recommend that this matter be given approval.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Pendleton, Oreg., October 31, 1905.*

CHIEF ENGINEER,  
*U. S. Reclamation Service, Washington, D. C.*

SIR: In accordance with your instructions the undersigned board of engineers has carefully considered the results of surveys and the future policy of the Reclamation Service in the Yakima Valley and has the honor to submit the following report:

#### EXISTING CONDITIONS

There are at present under irrigation in the Yakima Basin about 120,000 acres of land, for which the total low water flow of the river was diverted in 1905. Except so far as practicable by greater economy in the use of water, irrigation of new land must lead to water shortage on lands now irrigated and, consequently, to litigation, unless the flood waters of the river be stored.

#### PENDING LITIGATION

Litigation was commenced in August, 1905, owing to shortage of water in the river resulting from alleged illegal diversion by the Yakima Indian Reservation and such diversion was stopped through injunction proceedings. At the suggestion of the Supervising Engineer of the Reclamation Service the parties to this litigation have agreed to suspend action until January 1, 1906, so as to afford time for an attempt to adjust all water claims outside of court.

#### IRRIGABLE LANDS NOT UNDER EXISTING CANALS

The amount of irrigable lands in the Yakima Valley not yet irrigated and lying under canals projected by the Reclamation Service may be estimated at 340,000 acres. In addition to this

there is on the Yakima Indian Reservation, not at present irrigated, an area of over 100,000 acres, which can be cheaply placed under canals, but for which there is no late summer water in the river.

Further, fine bodies of land exist above projected Reclamation Service canals, bringing the total of irrigable lands not under existing canals up to 500,000 acres.

### LIMITATIONS OF ULTIMATE DEVELOPMENT

About 20,000 acres of dry land under existing canals can be fully irrigated by the exercise of reasonable economy in the use of water, from the natural flow of the river. Additional irrigation will be dependent upon the storage of flood waters. We find that practicable storage can be developed sufficient to provide a supply for only 300,000 acres and that, consequently, the irrigation development in the valley is limited by the possibility of storage, and that a choice must be made as to the lands upon which available storage waters are to be used.

### DIVISIONS OF YAKIMA PROJECT

We find that the irrigation of additional land can be accomplished by the successive construction of divisions of a general Yakima project and have considered the following divisions, each of which can be treated as a separate unit:

	<i>Acres</i>
Ledbetter Division (Benton) .....	210,000
Sunnyside Division .....	40,000
Tieton Division .....	24,000
Kittitas Division .....	60,000

This Board has previously reported upon the Tieton division, and has recommended its construction upon certain conditions.

We find that the Ledbetter and Sunnyside divisions can be constructed at a cost considerably below the value of the lands when irrigated.

We find that the cost of constructing the Kittitas division approaches more closely to the value of irrigated lands.

### NECESSITY FOR ADJUSTMENT OF WATER CLAIMS

The construction of any one of the above mentioned divisions necessitates the building of storage reservoirs, and in order to secure to the United States the use of all the waters to which it will be entitled, without interminable litigation, we consider it essential that an adjustment of water claims be first accomplished.

### SUNNYSIDE CANAL

The Sunnyside canal is owned by the Washington Irrigation Company, which is one of the oldest and largest appropriators

and users of Yakima River water, its appropriation being 1050 second-feet, and its use having increased from year to year, amounting in August, 1904, to 605 second-feet and in August, 1905, to 632 second-feet. The Company upon its showing of due diligence in the past may make good its full appropriation and thus deprive subsequent appropriators of water, upon which lands at present irrigated in other parts of the valley are dependent. Being in an apparently strong position to legalize its claim, and possessing large financial resources, it stands as a menace to the entire valley. With its claim limited to actual diversion, amicable adjustment of water rights seems probable. The company, on the other hand, realizes that it can legalize its claim only through extensive litigation, regarding the result of which nothing is certain except that it will be bitter, costly, and tedious, and that it will probably be accompanied by physical violence at headgate diversion points.

### SUNNYSIDE CANAL OPTION

The Washington Irrigation Company has made a proposition to the United States to sell to it all of its rights and property, except lands to be irrigated, and has thus made it practicable for the water rights in the valley to be settled on an amicable basis. The proposition is contained in a certain option dated October 23, 1905, of which two duly executed copies are enclosed.

### SUNNYSIDE DIVISION OF YAKIMA PROJECT

This division contemplates the purchase, enlargement, and extension of the Sunnyside Canal system and, in connection therewith, the construction of suitable storage works at the upper Yakima lakes, so that besides 9,000 acres of company lands, to which a water right attaches, some 40,000 acres of other arid lands may be reclaimed. The terms of the option are that the property may be taken over free of incumbrances except water contract obligations, and the price named therein is \$250,000.

We find that not over 60 percent of the present canal capacity and of the water actually diverted is required to satisfy outstanding contract obligations. Assuming the entire value of the property to be comprised in the remaining 40 percent, we estimate its value, on the basis of the cost of duplication, at \$301,000. In this valuation proper deductions have been made for depreciation of perishable structures and no allowance has been made for advantage of position, value of right of way, or the fact that the property is in going condition. Neither have any additions been made for engineering, administration during construction, or legal expenses. This valuation is further based upon the supposition that present water users will either restrict their claims to the amount of water due under their contracts, or pledge their lands to an equitable charge to pay for an increased supply.

The value of water rights has been determined on the basis of the cost of providing storage to produce equal results.

The full development of this division includes the improvement, enlargement, and extension of the canal and lateral system so as to cover 40,000 acres of new land; further, the substitution of substantial masonry for present perishable structures, in order to reduce maintenance charges and secure better control of the water.

We estimate the total cost of this division, including storage, at from \$1,500,000 to \$2,000,000, according to the extent to which present irrigators may decide to obtain more water than their contracts call for.

We find that development can be economically made at successive stages, and that an expenditure of \$1,000,000 at the present time will provide the purchase price and complete the first stage, which in itself will return the money expended.

We estimate that, exclusive of maintenance, a charge of \$40 per acre for the newly irrigated land, and a proportional charge for the irrigated land to cover its share of betterments and additional water over contract requirements, will repay the cost of construction, and we believe the lands to be ample security for such charges.

#### WATER RIGHTS OF YAKIMA INDIAN RESERVATION

The rights of the Indian Reservation have never been adjudicated. We find that actual diversions by the Yakima Reservation canals are sufficient to cover only a small proportion of the 125,000 acres of land on the reservation which can be readily and cheaply irrigated.

The natural desire to make this great body of land fully productive must be taken into serious consideration by the Reclamation Service. To have all private water claimants make amicable adjustments of their claims, and to leave the rights of the Indian Reservation undefined, cannot be considered as providing a safe basis from which to proceed with reclamation work.

#### RECOMMENDATIONS

In view of the above we respectfully recommend:

1. That the sum of \$1,000,000 be set aside for the purchase of the property of the Washington Irrigation Company and the construction of the Sunnyside division of the Yakima project, and that authority be granted to negotiate for necessary rights of way.

2. That no construction be undertaken until practically all private water claimants have satisfactorily adjusted their claims.

3. That no construction be undertaken until a satisfactory understanding is had with the Indian Office regarding the use of water on the Indian Reservation.

4. That if the above conditions have not been met by the time

the option of the Washington Irrigation Company expires, said company be requested to extend such option.

5. That, provided said option be still in effect when all the above conditions shall have been complied with, said option be exercised and construction commenced.

6. That the Ledbetter (Benton) and Kittitas divisions of the Yakima project receive due consideration as funds for their construction shall become available.

Respectfully submitted,

(Signed) A. P. DAVIS,  
A. J. WILEY,  
D. C. HENNY,  
*Board of Engineers.*

NOVEMBER 8, 1905.

The Honorable, The SECRETARY OF THE INTERIOR.

SIR: The Yakima Project in the State of Washington has now been fully investigated in regard to all preliminary matters upon which the feasibility would depend.

It is found that the project can be divided into four divisions each of which can be treated as a separate unit:

1. Ledbetter division involving the irrigation of 210,000 acres.
2. Sunnyside division involving the irrigation of 40,000 acres.
3. Tieton division involving the irrigation of 24,000 acres.
4. Kittitas division involving the irrigation of 60,000 acres.

Under date of October 24, 1905, this office submitted a report and recommendation concerning the Tieton division of this project.

The construction of the Ledbetter division would involve a much larger sum of money than would be available from the reclamation fund at the present time.

The cost of construction of the Kittitas division approaches quite closely to the value of the irrigated land.

The Sunnyside division for the irrigation of 40,000 acres of land, can be carried out by an extension and improvement of the present Sunnyside Canal system of the Washington Irrigation Company, at a total cost of from \$1,500,000 to \$2,000,000 according to the extent to which the present irrigators may decide to enter into contracts with the Government for water in order to supplement their present available supply.

The development of this project can be economically made in successive stages and the expenditure of \$1,000,000 at the present time will provide for the purchase price of the Sunnyside Canal

system and complete the first stage, which in itself will return the money expended.

The Washington Irrigation Company has agreed to sell its system to the United States for \$250,000, and I transmit herewith a copy of an executed agreement to this effect. The price proposed for this system is reasonable and the conditions are very favorable to the Government as the estimated value of the system on the basis of the cost of duplication is in excess of the purchase price. At the same time no allowance has been made for the advantage enjoyed by this Company in early priority of water, value of right of way and the fact that the Company is practically on a paying basis.

It is observed that there is but one witness to the signature of David C. Henny, Supervising Engineer, Reclamation Service. As there can be no doubt as to the signature in question, it was not deemed advisable to return his contract for correction in this particular, and I therefore suggest that in its consideration this formality be waived.

In my report of October 24, 1905, upon the Tieton Project, attention was called to the proposed allotment of the funds in the State of Washington. The report of this office of October 14 upon the state of the reclamation fund suggested the allotment of \$2,500,000 for the Yakima Project in the State of Washington. Of this amount \$500,000 has been suggested for the Okanogan Project and \$1,000,000 for the Tieton Project, leaving \$1,000,000 for the Sunnyside division of the Yakima Project, which as stated above, is sufficient for the acquisition of the Sunnyside Canal system and the first stage of the Sunnyside division.

In this connection I desire to call attention to the report of the Board of Engineers of October 16, 1905, upon the Tieton Project, copy of which was transmitted with office letter of October 24.

In said letter there is a detailed statement of the present conditions regarding the water supply in the Yakima Valley on account of the undetermined claims of the Yakima Indian Reservation.

The Sunnyside Canal system is owned by the Washington Irrigation Company, one of the earliest and largest appropriators and users of Yakima River water, its claim of appropriation being 1050 second feet and its use of water having increased from year to year, amounting in August 1904 (the critical stage of the irrigating season) to 605 cubic feet per second, and in August, 1905, to 632 cubic feet per second.

The Company may upon a showing of due diligence in the past, make good its full claim of 1050 second feet and thus deprive subsequent irrigators of a part, and perhaps the whole of the water upon which lands now irrigated in other parts of the Valley are dependent. The Company is in an apparently strong position to enforce its claim, and possessing large financial resources, it stands as a menace to the entire Valley.

With this Company's claim limited to actual diversion, amicable adjustment of water rights may be possible.

Efforts are now being made by the irrigators in the Yakima Valley to provide for a limitation of the rights of the various

claimants to the water upon a basis of actual diversion and of the irrigable areas under ditch.

Among the important claims to the use of the waters of Yakima River are the canals on the Indian Reservation. The actual diversions for these canals are sufficient to cover only a small proportion of the 125,000 acres of land on the Reservation which can be readily and cheaply irrigated. The natural tendency would be to make this great body of land fully productive and in any adjustment of the water rights this situation must be taken into serious consideration.

To have all private water claimants make amicable adjustment of their claims and to leave the rights of the Indian Reservation canals undefined, cannot be considered as providing a safe basis upon which to proceed with reclamation work in this Valley.

In the report upon the Tieton Project, heretofore referred to, this matter has been considered in detail and the recommendation was made that the rights to water of the Indian Reservation be defined by the Secretary of the Interior with due consideration to the basis of adjustment adopted by the private water users.

In view of these conditions it is recommended:

1. That the sum of \$1,000,000 be set aside for the purchase of the property of the Washington Irrigation Company and for the construction of the Sunnyside division of the Yakima Project; also that the contract with the Washington Irrigation Company for the purchase of the Sunnyside Canal system be approved, subject to the determination to proceed with construction.

2. That no construction be undertaken until practically all private water claimants have satisfactorily adjusted their claims.

3. That no construction be undertaken until a definite and satisfactory determination has been reached as to the amount of water to which the Indian Reservation canals are entitled.

4. That the Ledbetter and Kittitas divisions of the Yakima Project receive the consideration as funds for their construction shall become available.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, November 15, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Some misunderstanding having arisen as to the effect of my action of the 8th instant in my communication to you of



that date in the matter of the Tieton reclamation project in the State of Washington, you are advised that it was the intention of the Department by said action to simply suspend action on your recommendation of the 24th ultimo, pending further investigation and consideration of said project.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, December 12, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to your letter of October 24, 1905, and to my reply thereto of November 8th and 15th, respectively, relative to the Tieton reclamation project in the State of Washington, you are advised that after further consideration of the matter and the receipt of further and more detailed information in regard to said project, I have concluded to, and hereby do approve said project and set aside \$1,000,000.00 therefor from the Reclamation Fund subject, however, to the following conditions, and with the understanding that not a dollar of the moneys hereby appropriated shall be expended for construction until said conditions are complied with, namely:

First: The adjustment of all conflicting claims of those who are appropriating water from the Yakima River or any other body of water, for irrigation, power, or any other purpose.

Second: The determination of all suits now pending to prevent the diversion of water from the Yakima River to the Yakima Indian Reservation, and any and all other litigation that in any way tends to embarrass or restrict the appropriation of the waters from said river or any other body of water needed for the irrigation of the lands under said proposed project.

Third: The determination of the questions presented by the proposed contract to purchase the Sunnyside canal for \$250,000.00, now pending before the Assistant Attorney General for this Department, and the submission to the Department, if required or necessary, of such a contract from the owners of said canal as will meet the approval of the Department.

Fourth: The satisfactory disposition of the protest of the State of Washington against the entrance by the Government into contractual relations with the Washington Irrigation Company until the State is heard in the matter.

Fifth: The securing to the Indians on the Yakima Reservation of a sufficient water supply by passage of appropriate legislation by Congress, or otherwise.

Sixth: The settlement, termination and disposition of any and all difficulties, conflicts, litigation, complications, or controversies that will in any way tend to embarrass or restrict the appropriation and use of the waters of the Yakima River or any other stream or body of water necessary for the irrigation of the lands under this project and the lands in the Yakima Indian Reservation.

Seventh: That a sufficient acreage be pledged to secure the return to the Reclamation Fund of the cost of construction.

Eighth: That the above and foregoing matters be settled and a clean feasible proposition submitted to the Department free from all difficulties or complications, before the expenditure of any money on the construction of said project be made.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

OFFICE OF THE SECRETARY,  
*Washington, December 12, 1905.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Referring to your communication of November 8, 1905, relative to the Sunnyside reclamation project in the State of Washington, you are advised that after further consideration of the matter and the receipt of further and more detailed information in regard to said project, I have concluded to, and hereby do approve said project and set aside \$750,000.00 therefor from the Reclamation Fund subject, however, to the following conditions, and with the distinct understanding that not a dollar of the moneys hereby appropriated for this project shall be expended for construction until said conditions are complied with, namely:

First: The adjustment of all conflicting claims of those who are appropriating water from the Yakima River or any other body of water, for irrigation, power, or any other purpose.

Second: The determination of all suits now pending to prevent the diversion of water from the Yakima River to the Yakima Indian Reservation, and any and all other litigation that in any way tends to embarrass or restrict the appropriation of the waters from said river or any other body of water needed for the irrigation of the lands under said proposed project.

Third: The determination of the questions presented by the proposed contract to purchase the Sunnyside canal for \$250,000.00, now pending before the Assistant Attorney General for this Department, and the submission to the Department, if required or necessary, of such a contract from the owners of said canal as will meet the approval of the Department.

Fourth: The satisfactory disposition of the protest of the State of Washington against the entrance by the Government into contractual relations with the Washington Irrigation Company until the State is heard in the matter.

Fifth: The securing to the Indians on the Yakima Reservation of a sufficient water supply by passage of appropriate legislation by Congress, or otherwise.

Sixth: The settlement, termination and disposition of any and all difficulties, conflicts, litigation, complications, or controversies that will in any way tend to embarrass or restrict the appropriation and use of the waters of the Yakima River or any other stream or body of water necessary for the irrigation of the lands under this project and the lands in the Yakima Indian Reservation.

Seventh: That a sufficient acreage be pledged to secure the return to the Reclamation Fund of the cost of construction.

Eighth: That the above and foregoing matters be settled and a clean feasible proposition submitted to the Department free from all difficulties or complications, before the expenditure of any money on the construction of said project be made.

I enclose herewith for your information copy of a letter dated the 9th instant, from Hon. W. L. Jones of the State of Washington, and copy of my reply thereto of even date herewith relative to said project.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

## YAKIMA INDIAN RESERVATION, 1906

[Extract from] An act authorizing the disposition of surplus and allotted lands on the Yakima Indian Reservation, in the State of Washington, which can be irrigated under the Act of Congress approved June seventeenth, nineteen hundred and two, known as the reclamation Act, and for other purposes. (Act March 6, 1906, 34 Stat. 53-55, Public Law 36, 59th Cong., 1st sess.)

\* \* \* That if within the limits of the Yakima Indian Reservation, in the State of Washington, as described in the Act approved December twenty-first, nineteen hundred and four, entitled "An Act to authorize the sale and disposition of surplus or unallotted lands of the Yakima Indian Reservation, in the State of Washington," there shall be found surplus or unallotted lands under

irrigation projects deemed practicable and undertaken under the provisions of the Act of Congress approved June seventeenth, nineteen hundred and two, known as the reclamation Act, the Secretary of the Interior is hereby authorized to exclude from the provisions of said Act of December twenty-first, nineteen hundred and four, such surplus or unallotted lands which can be irrigated under such project and to dispose of the same in the manner hereinafter provided, and he is further authorized to make withdrawals of such lands for the purposes provided in said reclamation Act.

\* \* \* \* \*

Sec. 8. That the Secretary of the Interior is hereby authorized to perform any and all acts and to make such rules and regulations as may be necessary and proper for the purpose of carrying the provisions of this Act into full force and effect.

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Portland, Oregon, December 24, 1906.*

CHIEF ENGINEER,  
*Washington, D. C.*

DEAR SIR: A Board of Engineers, consisting of Messrs. E. G. Hopson and D. C. Henny, has the honor to report to you upon the Wapato Project, State of Washington, as follows:

The information and conclusions herewith presented are based in the first place upon a report submitted by engineer Joseph Jacobs dated December 17 which, in turn, is based upon a report by Mr. Ernest McCulloh, who has had direct charge of investigations on the Wapato Project. Mr. Jacobs' report, inclusive of Mr. McCulloh's report, is enclosed herewith.

In the second place this report is based upon personal knowledge of the project and of the various stages of the investigations which have been made first by Mr. C. W. Paine and later by Mr. Ernest McCulloh.

In general this Board can fully agree with the statements and conclusions of engineer Jacobs, but wishes to make a few exceptions as follows:

Referring to Mr. Jacobs' statement, we beg to state that on page 2 the information furnished by Mr. Jacobs that "effort was immediately made through the Superintendent of the Agency, Mr. J. Lynch, to open negotiations with the Indians, etc." is not in exact accordance with our understanding of the facts. Mr. J.

Lynch stated that he considered it useless, from his knowledge of the Indians, to commence negotiations with them until more definite information as to the water charges on the land could be furnished.

On page 4 of Mr. Jacobs' statement toward the end of the middle paragraph, he touches upon the point of return to the tribal fund by the Reclamation Service of the value of the old ditches actually utilized in the new system.

The Jones Act of March 6, 1906, provides "that the irrigation works heretofore constructed for the Yakima Indian Reservation may be, at a cost to be determined by the Secretary of the Interior, included in any project developed under the provisions of the Reclamation Act and of this Act and become a part of said project for all purposes of the Reclamation Act, and the cost of same shall be included in the cost of such project and be paid into the Yakima Indian fund (not out of the Reclamation Fund but) out of the proceeds arising from the sale of water rights from time to time as payments on account thereof are received." It is apparent that the Reclamation Service should not reimburse the tribal fund but that the tribal fund should be reimbursed from the proceeds. The determination of the acre cost should, therefore, include estimated cost of present ditches that can be utilized, but any allotment necessary for the construction of the project need not include said cost.

Engineer Jacobs states that a ruling by the Indian Office as to obligation on the part of leased lands and sold lands to contribute towards the project to be made by the Indian Office would materially aid in solving certain problems in connection with this project.

It is the opinion of the Board that the final determination of this point will not lie with the Indian Office but with the courts, although the opinion of the Department will be of great help.

*Duty of water.*—Engineer Jacobs holds that the gross duty of the water for the Wapato Project would be materially greater than for the Sunnyside Project by reason of the canals being shorter. To some extent this Board can agree, but it is of the opinion that the gross duty as figured of practically one cubic foot per second to 100 acres is not sufficient. Mr. McCulloh figures, on page 7 of his report, that 1,200 second feet gross are required for practically 120,000 acres of land. This Board is inclined to place the gross duty at one cubic foot per second to 90 acres and, so far as the actual capacity of the canals is concerned, it believes that the capacity of the Toppenish and the main canal respectively, figured at one second foot to 99 acres and one second foot to 93 acres, does not provide sufficiently for months of maximum draft and that the capacity of these canals should be increased at least 15%.

*Drainage.*—It appears that Mr. McCulloh has figured in his final summary practically \$1,150,000 for drainage. The great bulk of this expense results from his assumption that elaborate networks of tile drains are to be laid within the section marked "Alkali land."

It is the opinion of this Board that if any necessity for laying tile drains exists it should be thrown upon the owner of the land and that the work to be done by the Government should be confined to the carrying of drainage channels where they can be readily reached by individual drains or lines of drain tile.

No provisions appears to have been made for the draining of the lands lying above the alkali lands. The necessity for extending a drainage system into these lands is uncertain, but this Board considers it unsafe to assume that no drainage system would be necessary and deems it very probable that open drains will have to be constructed quite extensively and possibly on every section line on all the flat area of the project.

*Farm unit.*—Exception is taken by this Board to Engineer Jacobs' preference expressed on page 8, that an 80-acre farm unit is to be preferred, "particularly so, as this would permit the industrious Indian to hold his own 80 acre allotment and obtain water for same." The industry of the Indian is something that cannot be known in advance, and it is believed that the safety of the project must lie in the fact that at least three-fourths of the land will pass into the ownership of whites under the present provisions of the Jones Bill.

### ESTIMATES

*Storage.*—In a report submitted by Mr. Jacobs on storage in the Yakima basin in October, 1905, it will be noted from table 4 on page 7 that an estimate is made of the total storage required on the basis of various aggregate areas to be irrigated in the Yakima basins. As this area is likely to be close to 300,000 acres, it would be apparent from this table that the average storage per acre would amount for the entire tract to 2.70.

Applying this figure to the 118,000 acres proposed to be included in the Wapato Project, it follows that about 319,000 acre feet storage would be required if no water rights had matured in favor of the Indian lands. As storage is not required and has not been figured on generally prior to the middle of June, a proper deduction to be made from above total for water rights matured is estimated as follows:

250 second feet for 2 months.....	<i>a. f.</i> 30,000
200 second feet for 1 month.....	12,000
150 second feet for 1 month.....	9,000
Total for 4 months irrigation after the middle of June.	51,000

Crediting the Indian lands with this amount, it seems just that they should be charged with a storage of about 268,000 acre feet, which for 118,000 acres would make an average of about 2¼ acre ft. per acre.

On the basis of the estimated cost per acre foot of storage of \$2.25, the charge for storage would therefore amount to \$5.06 per acre.

*Cost of main canals and laterals.*—The total charges of main canals and laterals and other incidentals taken from the general summary of Mr. McCulloh's report, page 27, is \$920,770, or approximately \$7.80 per acre.

By reason of insufficient capacity of main canals and unit prices, which are deemed somewhat low, this Board considers that this acre cost should be increased approximately 25 %, which would make the charge per acre for the above items \$9.75.

*Drainage.*—The total charge for drainage included in Mr. McCulloh's general summary is \$957,016 plus 20 % for engineering contingencies, total \$1,148,419. In view of the previously expressed opinion that tile drains should not generally be provided by the Reclamation Service, this estimate can furnish no safe guide for what, in our opinion, should be figured as the proper charge for drainage. While about 80 % of this item consists of tile drain and should largely be omitted, on the other hand, it does not include drainage ditches for the bulk of the project. A safe estimate for this work cannot very well be made at the present time and probably cannot be made until after considerable work on an actual drainage system shall have been done and the beneficial effects of it shall have been determined. For present purposes, however, it is considered that a general charge of \$6.00 per acre for drainage should prove entirely ample.

In view of the above arguments it is believed that the following is a fair approximation of the probable cost per acre for 117,769 acres included in this project:

Storage .....	\$5.06
Main canals, laterals, telephones, roads, rights of way and appraised value of constructed canals.....	9.75
Drainage .....	6.00
Total for construction.....	\$20.81
Maintenance for 10 years.....	6.00
Total .....	26.81

The object of this report as understood by this Board is twofold:

a. To furnish information upon which to base any present recommendation to the Secretary of the Interior for additional allotment.

On this point this Board fully agrees with Engineer Jacobs, viz., that the project can be developed as fast as funds may be available in a satisfactory and economical manner. The tentative allotment of \$100,000 made by the Secretary of the Interior should, in our opinion, be made a definite allotment as soon as a sufficient number of adult Indians have signified their consent to the sale of three-fourths of their allotments under the conditions of the Jones Bill, and as soon as legal consent has been obtained regarding lands owned by minor heirs, and such allotment should become available for the construction of storage works to the end that storage water may be furnished to lands at present under irrigation.

If any further funds can be made available for construction of this project, such funds could be advantageously used upon the consent of the Indians having been obtained.

If additional funds are available an addition allotment of any suitable amount, not exceeding for the present \$400,000, subject to the consent of the Indians being obtained, may be considered a wise investment in the interest of the Reclamation Service and the Yakima valley.

b. The determination by the Secretary of the Interior of the water charges to be paid by the Indians for the quarter of their present allotment retained by them. The present estimates, indicating that such charge for construction alone may be placed at \$21.00 per acre and for construction and maintenance included, \$27.00 per acre, furnish, in our opinion, a sufficient basis for the Secretary to adopt these figures as final so far as the Indians are concerned.

An early determination of the charges to be paid by the Indian is deemed essential for the purpose of obtaining their consent, upon which the possibility of the project at present hinges.

It is, therefore, recommended:

1. That the charges to be paid by the Indians be now fixed at \$21.00 per acre exclusive of maintenance, or \$27.00 per acre inclusive of maintenance.

2. That Mr. J. Lynch, Superintendent of the Yakima Indian Agency, be instructed to obtain the consent of the Indians affected by the project so far as required under the Jones Bill, proper contracts to that effect to be prepared by the Department.

3. That upon this consent having been obtained the tentative allotment be made definite and such additional funds, not to exceed \$400,000, be allotted to the Wapato Project for commencement of construction.

Respectfully submitted.

(Signed) D. C. HENNY,  
E. G. HOPSON,  
*Board of Engineers.*

## PROVISIONS OF INTERIOR DEPARTMENT APPROPRIATION ACT, 1926

[Extract from] An act making appropriations for the Department of the Interior for the fiscal year ending June 30, 1926, and for other purposes. (Act March 3, 1925, 43 Stat. 1141, 1170, Public Law 580, 68th Cong., 2d sess.)

\* \* \* That the following sums are appropriated out of any money in the Treasury not otherwise appropriated, for the De-



partment of the Interior for the fiscal year ending June 30, 1926, namely:

\* \* \* \* \*

Yakima project (Kittitas Division), Washington: For construction of the Kittitas Division and incidental operations, \$375,000: *Provided*, That no part of this appropriation shall be used for construction purposes until a contract or contracts in form approved by the Secretary of the Interior shall have been made with an irrigation district or with irrigation districts organized under State law providing for payment by the district or districts as hereinafter provided. The Secretary of the Interior shall by public notice announce the date when water is available under the project: *Provided further*, That no part of the sum provided for herein shall be expended for construction on account of any lands in private ownership until an appropriate repayment contract, in form approved by the Secretary of the Interior, shall have been properly executed by a district organized under State law, embracing the lands in public or private ownership irrigable under the project, and the execution thereof shall have been confirmed by decree of a court of competent jurisdiction, which contract, among other things, shall contain a provision for an appraisal, showing the present actual bona fide value of all such irrigable lands fixed without reference to the proposed construction of said Kittitas Division, and shall provide that until one-half the construction charges against said lands shall have been fully paid no sale of any such lands shall be valid unless and until the purchase price involved in such sale is approved by the Secretary of the Interior, and shall also provide that upon proof of fraudulent representation as to the true consideration involved in any such sale the Secretary of the Interior is authorized to cancel the water right attaching to the land involved in such fraudulent sale; and all public lands irrigable under the project shall be entered subject to the conditions of this section which shall be applicable thereto: *Provided further*, That no part of the sum hereby appropriated shall be expended for construction until a contract or contracts shall have been executed between the United States and the State of Washington pursuant to its land settlement act embodied in Chapter 188, Laws of 1919, as amended by Chapter 90, Laws of 1921, and by Chapters 34 and 112, Laws of 1923, or additional enactments, if necessary, whereby the State shall assume the duty and responsibility of promoting the development and settlement of the project after completion, including the subdivision of lands held in private ownership by any individual in excess of one hundred and sixty irrigable acres, the securing, selection, and financing of settlers to enable the purchase of the required livestock, equipment and supplies, and the improvement of the lands to render them habitable and productive. The State shall provide the funds necessary for this purpose and shall conduct operations in a manner satisfactory to the Secretary of the Interior: *Provided further*, That the operation and maintenance

charges on account of land in this project shall be paid annually in advance not later than March 1, no charge being made for operation and maintenance for the first year after said public notice. It shall be the duty of the Secretary of the Interior to give such public notice when water is actually available for such lands.

The unexpended balance, if any, remaining at the close of the fiscal year 1925 from the appropriation of \$375,000 made by the act referred to as the "Second Deficiency Act, fiscal year 1924," approved December 5, 1924 (Public, No. 292), for continued investigation, commencement of construction of the Kittitas unit, and incidental operations, Yakima project, Washington, is hereby reappropriated, to be available and to continue available for use during the fiscal year 1926.

The SECRETARY OF THE INTERIOR,  
*Washington, March 6, 1931.*

The PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: Consideration is now to be given to the commencement of construction on the Kennewick Highlands project in the State of Washington. An Act of Congress approved May 14, 1930, (46 Stat. 279) appropriated \$640,000 to be immediately available for the construction of this project.

Before contracts may be let for the construction of this project, it will be necessary (a) that a finding be made by the Secretary of the Interior in accordance with subsection B, Section 4 of the Act of December 5, 1924 (43 Stat., 672, 702) as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices, and the probable cost of development; and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

and (b) that the project be approved by the President, as required by Section 4 of the Act of June 25, 1910, (36 Stat., 835, 836).

#### ENGINEERING FEATURES

The Kennewick Highlands is a tract of approximately 4,000 acres of irrigable land lying adjacent to the town of Kennewick,

Washington. In 1909, private interests constructed a pumping plant on the banks of the Columbia Irrigation Canal and two wood stave pipe lines 9,500 feet and 7,000 feet long, respectively, together with a few laterals for the irrigation of these lands, power being obtained by purchase from the public utility serving the territory. Development was fairly rapid, and about 3,000 acres were planted to orchards. Inadequate pumping capacity combined with the increasing needs of the trees as they approached maturity brought about a shrinkage in the irrigated area, leaving but 2,500 acres irrigated at this time. The settlers have managed to keep one pipe line in fair condition, but the other has reached the limit of its life. Most of the pumping units, although originally of good design and construction, have lost their efficiency and need replacement. The settlers have paid an average annual charge of \$14.00 per acre for a number of years, but on account of the power charge of \$8.00 per acre have been unable to effect needed improvements. Any further increase in the annual charge will cause abandonment of part, if not all, of the area.

It is proposed to replace the present worn out 24" pipe line with a wood stave line 34" in diameter and to replace pumps now lifting 14 second feet of water with modern pumps to lift 42 second feet of water through an average head of 160 feet. With the retained unit this will provide a total supply of 54 second feet compared with a present supply of 26 second feet. The present distribution system is to be improved and carrying capacity in the Columbia Irrigation District canal from which the water is drawn for the Highlands is to be increased. The limit of the proposed expenditures has been fixed by contract at \$196,000. The Columbia Irrigation District canal, from which the water will be taken, diverts from the Yakima River which has a flow far in excess of the requirements.

To provide cheaper power for this project, it is proposed to build a canal of 1,000 second feet capacity, two and one-half miles long, parallel to the Yakima River at Prosser, Washington, to develop 40 feet of head, and produce 3,200 H.P. of electrical energy at a cost of \$369,000. If arrangements for use of existing transmission lines are not made, a new transmission line will be built from the power plant to the Kennewick Highlands tract, a distance of thirty miles, at an estimated cost of \$75,000. The total cost of the project would then be \$640,000.

### ECONOMIC FEATURES

The average land holding in the Kennewick Highlands area is somewhat less than twenty acres, there being at this time over 100 homes on the tract. Present land prices are uncertain as land sales in recent years have been negligible because of the uncertainty of the water supply, but with the proposed improvements it is expected that the value of improved orchard lands will reach as high as \$1,000 per acre. Few sales of new lands are anticipated after the proposed reconstruction of the project, the present settlers being desirous of retaining their holdings, and the undevel-

oped tracts, to a large degree being owned by people now residents in the adjacent town awaiting an assured water supply. There are no public lands in the project and no settlement problems are involved. A careful survey has been made to determine productiveness, and all of the lands found to be of good or excellent quality, suitable for the production of the prevailing crops of fruits and early vegetables. With the decrease in annual charges and the increase in water supply, to be secured under the plan of rehabilitation, the future of the district is assured.

#### PAYMENT OF CHARGES

All of the lands to be benefited are within an irrigation district, and a satisfactory contract has been voted by the owners of the lands and confirmed by the court. The contract provides for transfer to the United States by the District of title, free of liens, to the dam, and the canal rights of way to be utilized in connection with the power feature of the project. The property to be conveyed has an estimated value of \$196,000, and the United States is to expend up to this amount in the reconstruction of the pumping plant and distribution system as heretofore outlined. The district is by contract required to pay the United States annually \$21,000 and will receive in return the necessary power to operate the pumping plant. The estimated annual cost to the district for the operation and maintenance of the reconstructed pumping and distribution system, including payments for power is \$11.00 per acre, or \$3.00 per acre less than the present annual charge. The United States will operate only the power plant.

Of the total energy output, approximately one-third will be required to care for the Kennewick Highlands, and a market for the balance of the power now seems assured. It is expected to exchange a part of the surplus power output for the transmission service over existing lines to the Kennewick Highlands, leaving the balance available for sale. Annual payments by the district will leave an estimated net annual income of \$9,000 to apply on depreciation and repayment of the cost of construction of the power plant, which, together with income from the sale of surplus power, is expected to be sufficient to repay the total investment within a period of forty years. The appropriation act provides that net revenues shall be applied, first, to repayment of the cost incurred by the United States; thereafter, to retire the obligations incurred by the district in purchase of the dam and right of way, and thereafter the revenue is to go to the Reclamation Fund.

#### FINDING REGARDING FEASIBILITY OF PROJECT

It is believed that this project can be constructed within the estimated cost, and that it will result in a stable and permanent agricultural development of the Kennewick Highlands. The markets for power are believed such that the entire investment by the United States will be returned from the sales of power as provided in the appropriation act. In view of the urgency for the

relief of the situation on the Kennewick Highlands, I recommend the approval of the project and the issuance of authority to proceed with its construction.

Very truly yours,

(Signed) RAY LYMAN WILBUR.

Approved March 7, 1931.

(Signed) HEBERT HOOVER,  
*President.*

OFFICE OF THE SECRETARY,  
*Washington, November 1, 1935.*

THE PRESIDENT,  
*The White House.*

MY DEAR MR. PRESIDENT: The original irrigation plan for the development of the Yakima project contemplated the construction of an irrigation system to serve the lands now included in the Roza division.

The division comprises a strip of land from one to three miles wide above existing irrigation canals on the north side of the Yakima River, extending from a point near Yakima to Benton City, a total distance of ninety-nine miles. The lands are well situated for successful irrigation, the soil is excellent, and there are no serious drainage problems. The division contains an irrigable area of 72,000 acres, of which 42,300 acres will receive water by gravity flow and the remaining area will be under pumping lifts up to a maximum of 200 feet. The total estimated cost of construction of the irrigation system, complete with power plant, pumping plants, transmission lines, drainage ditches, etc., required to supply water to the entire irrigable area of the division is approximately \$15,000,000.

Water is available for the irrigation of the lands of the division from the storage system of the Yakima project, as now constructed, and the lands of the division are included within the boundaries of the Yakima-Benton Irrigation District, an irrigation district created, organized and existing under the laws of the State of Washington.

The District has entered into a contract with the United States for the purchase of 375,000 acre-feet of water, consisting of stored water and natural flow combined, at an estimated cost of \$2,500,000, which sum the District has agreed to pay in eighty semi-annual installments, beginning with June 15, following the first season in which water is available for diversion by the District for irrigation use. The construction of the irrigation works for this division is essential to secure repayment of the cost of the

Storage division of the Yakima project as now constructed.

The Supreme Court of the United States in the Parker Dam decision (*United States v. State of Arizona*, 295 U. S., 174) indicated that Section 4 of the Act of June 25, 1910, 36 Stat. 835, is applicable to irrigation projects constructed under the National Industrial Recovery Act, and this report upon the Roza division of the Yakima project is made to you under said statute of 1910 and under Subsection B of Section 4 of the Act of December 5, 1924, 43 Stat., 701.

Section 4 of the Act of June 25, 1910, provides in effect, that after the date of that act no irrigation project to be constructed under the Act of June 17, 1902, 32 Stat., 388, and acts amendatory thereof or supplementary thereto shall be undertaken unless and until the project shall have been recommended by the Secretary of the Interior and approved by the direct order of the President.

Subsection B, Section 4, Act of December 5, 1924, 43 Stat., 701, provides as follows:

That no new project or new division of a project shall be approved for construction or estimates submitted therefor by the Secretary until information in detail shall be secured by him concerning the water supply, the engineering features, the cost of construction, land prices and the probable cost of development, and he shall have made a finding in writing that it is feasible, that it is adaptable for actual settlement and farm homes, and that it will probably return the cost thereof to the United States.

As heretofore stated the Roza division is approximately 100 miles long, and it has been determined that the most economical and satisfactory development will be had by constructing the irrigation system in stages, beginning at the point of diversion on the Yakima River. In accordance with this plan of development, under date of September 18, 1935, an allotment of \$5,000,000 was approved for the construction of the first unit of this division. On September 26 this allotment was reduced by \$1,000,000, leaving \$4,000,000 available for the construction of the division.

The good record of the Yakima project during the past 25 years, both from an agricultural and a repayment standpoint, justified the belief that the economic benefits to be derived from the ultimate development of the Roza division, as one of the best divisions of the Yakima project, will lead to its completion with appropriations from the Reclamation Fund, in the event further allotments of funds are not made under Title II, of the National Industrial Recovery Act approved June 16, 1933, 48 Stat., 195, or under Public Resolution No. 11—74th Congress, approved April 8, 1935, known as the Emergency Relief Appropriation Act of 1935.

The contract for repayment of cost of construction will contain provisions aimed at safeguarding the interest of settlers against the purchase of the lands of the division at inflated prices.

Surveys have been made, and the land has been classified, and I find that the division is feasible; that the land watered thereby is well adaptable for actual settlement and farm homes; that the land owners benefited by the division will be able from the agricultural produce of the lands irrigated to return the cost of the

development and that therefore the construction cost of the division will probably be repaid to the United States.

Construction of the proposed irrigation works will furnish employment to large numbers now unemployed and further the purpose and intent of the Act of Congress of June 16, 1933.

I recommend that the division be approved and that the necessary authority be issued to the Department to make contracts for construction of the division and for repayment of the cost thereof by the Yakima-Benton Irrigation District embracing the lands benefited.

Sincerely yours,

(Signed) HAROLD L. ICKES,  
*Secretary of the Interior.*

Approved November 6, 1935.

(Signed) FRANKLIN D. ROOSEVELT,  
*President.*

## KENNEWICK DIVISION AUTHORIZED

An act to authorize the construction, operation, and maintenance, under Federal reclamation laws, of the Kennewick division of the Yakima project, Washington. (Act June 12, 1948, 62 Stat. 382, Public Law 629, 80th Cong., 2d sess.)

\* \* \* That for the purposes of irrigating lands; of generating, transmitting, and marketing hydroelectric energy; for the preservation and propagation of fish and wildlife; and looking to the completion of the Yakima project, there is hereby authorized to be constructed, operated, and maintained, in accordance with the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto) the Kennewick division of the Yakima project, composed of the following principal units, to wit:

Prosser-Chandler power canal.

Chandler hydroelectric power and hydraulic pumping plant.

Main canal.

Kiona wasteway.

Amon siphon and hydraulic pumping plant.

Amon wasteway.

Lateral system.

Improvements for fish and wildlife.

SEC. 2. Construction costs allocated to the conservation and propagation of fish and wildlife by the Secretary of the Interior in accordance with the provisions of the Act of August 14, 1946 (Public Law 732, Seventy-ninth Congress), and operation and maintenance costs attributable to operations for the preservation and propagation of fish and wildlife shall be nonreimbursable.

SEC. 3. The Secretary of the Interior is authorized to enter

into contracts for the sale of electric power and energy not required for project uses, hereinafter termed commercial power and energy, at such rates as in his judgment will produce power revenues which, together with power revenues from all other sales of power and energy, will be at least sufficient to cover (1) an appropriate share of the annual operation and maintenance cost, including reasonable provision for replacements; (2) the return, within not exceeding sixty-six years from the date upon which each feature becomes revenue producing, of an appropriate share of the construction investment properly allocable by the Secretary to commercial power and energy together with interest on the unpaid balance at a rate of not less than  $2\frac{1}{2}$  per centum per annum; (3) the return, without interest, within a period not exceeding sixty-six years, and, with respect to each irrigation block, within a period conforming so far as practicable to the period within which water users are required to repay their share of the irrigation costs of that share of the investment found by the Secretary to be properly allocable to irrigation but assigned for return from net power revenues.

SEC. 4. The Secretary of the Interior is authorized to enter into contracts for repayment of those construction costs of the development assigned to be repaid by the project water users, which, in the discretion of the Secretary, may require, among other things, that those charges be distributed between the presently irrigated lands and the new lands and among farm units in a manner that takes into account the productivity of the land and in the case of new lands the estimated cost of preparing the land for irrigation, all in the manner and to the extent that the Secretary shall find to be proper: Provided, That these charges shall be such as will provide for the payment of (1) an appropriate share of the annual operation and maintenance cost, including reasonable provisions for replacements, and (2) repayment within a period not exceeding sixty-six years without interest of an appropriate share of that part of the construction cost which can properly be allocated to irrigation and probably be repaid by the water users.

SEC. 5. The power and energy revenues to be applied toward the fulfillment of the obligation to return that share of the investment found by the Secretary to be properly allocable to irrigation but assigned for return from net power and energy revenues may include one-fifth of the revenues derived from the interest component of power rates in addition to any and all sums otherwise assigned for such purposes from power revenues.

SEC. 6. The Secretary of the Interior is hereby authorized to construct extra capacity in the main canal for the future irrigation of approximately seven thousand acres of land, in addition to the presently proposed development, and to recognize the cost of providing such extra capacity as a deferred obligation to be paid at such time as the additional area may be brought into the project.

SEC. 7. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such sums as may be required for the purposes of this Act.



# YUMA PROJECT

UNITED STATES GEOLOGICAL SURVEY,  
RECLAMATION SERVICE,  
*Yuma, Arizona, April 8, 1904.*

Mr. F. H. NEWELL,  
*Chief Engineer, Reclamation Service, Washington, D. C.*

SIR: We have examined the plans and estimates, and inspected the lands under the Yuma Project, as outlined in the report of J. B. Lippincott, herewith, exhibit 1.

The project includes the construction of a diversion weir across the Colorado River, near Laguna, about 15 miles above Yuma, and the construction of a canal on each side of the river, for irrigation.

Much of the land is subject to overflow at high water, and it is consequently necessary to build levees to prevent this. Drainage channels are also necessary, and at times of high water these must be discharged by means of pumping. All these plans are contemplated in the estimates, which we have found to be essentially correct, but have modified in some details. We enclose a copy of our modified estimates herewith, exhibit 2.

We approve the general plan submitted, but have directed some further investigations in order to consider an alternative crossing of the Gila River.

The legality of the diversion of the Colorado River is essential to the feasibility of the project. The unregulated waters of the River are sufficient for all the requirements of the Yuma Project as soon as their diversion is authorized.

## THE LANDS

The lands are in general very fertile, but on the California side are all included in the Indian Reservation, and we regard these as essential to the project, and legislation providing that these lands must bear their proportion of the cost of reclamation, is necessary to the feasibility of the project.

The lands on the Arizona side are mainly in private ownership, and the estimated cost of the project is so great that it is not feasible unless practically all of this land contributes to the cost.

A small portion of this land is also in holdings greater than 160 acres, and all will be benefited by the levee and drainage improvements, whether it receives irrigation water or not. For these reasons we consider it imperative, not only that the owners of these lands execute liens on their land for the return of the cost of reclamation, but also that the owners of holdings exceeding 160 acres in area, shall guarantee to dispose of their surplus holdings in tracts of 160 acres, or less, in order to make full compliance with the provisions of the reclamation act. In order to secure this end we recommend that all such surplus holdings be transferred in trust to the Water Users' Association, to be sold in small tracts before the completion of the work, to persons qualified and binding themselves to take water for irrigation, under the contract between the Secretary of the Interior and the Water Users' Association.

It is also essential that legal guarantees be obtained that the costs of rights of way for canals, levees, power and pumping plants and the rectification of the channel of the Gila and Colorado Rivers, shall be reasonable.

When the conditions above outlined have been complied with, we recommend for construction the Yuma Project under the general plans prepared, subject to such modifications as have been or may be in future made by consulting boards.

To this end we recommend that Mr. J. B. Lippincott be instructed to proceed with the preparation of detailed plans and specifications for the project, and that the Honorable the Secretary of the Interior be requested to give his general approval to the Yuma Project and that the sum of \$3,000,000 be set aside in the reclamation fund, for the construction thereof, subject to the fulfillment of the above described requirements.

Very respectfully,

(Signed) A. P. DAVIS.  
H. N. SAVAGE.  
W. H. SANDERS.  
B. M. HALL.  
GEO. Y. WISNER.  
J. H. QUINTON.

NOTE—In regard to lands exceeding 160 acres in one holding, or those owned by non-residents, the requirements of this report will be met by a deed of trust to the Yuma County Water Users' Ass'n, with power to sell at public auction, upon the completion of the irrigation project, if not sooner sold by the owner, to person eligible to complete a water right under the reclamation act.

MAY 9, 1904.

The Honorable, the SECRETARY OF THE INTERIOR,  
*Washington, D. C.*

SIR: In the act making appropriations for the current and contingent expenses of the Indian Department, Public No. 125, approved April 21, 1904, sec. 25 is stated as follows:

The Secretary of the Interior is hereby authorized to divert the waters of the Colorado River and to reclaim, utilize, and dispose of any lands in said reservations, etc.

There have already been carried on under authority of the Reclamation Act of June 17, 1902, and under instructions from you extensive surveys and examinations as to the possibility of diverting the waters of Colorado River. A preliminary report has been prepared by Mr. J. B. Lippincott, supervising engineer, and submitted to the Chief Engineer. This in turn has been referred to a board of engineers consisting of Messrs. Arthur P. Davis, H. N. Savage, W. H. Sanders, B. M. Hall, Geo. Y. Wisner, and J. H. Quinton.

In general the reports indicate that by means of construction of a dam across Colorado River and other works, it will be possible to reclaim upwards of 85,000 acres of land at a cost of less than \$40 per acre. Much of this land, outside the Indian reservations is in private ownership and the feasibility of the project will depend largely upon the owners of the land uniting in a satisfactory form of organization under the terms and condition of the Reclamation Law.

The land is extremely fertile in character, the climate is somewhat tropical, and the products have such value per acre that it is believed that the cost of \$40 per acre is not prohibitive.

There are a large number of alternatives to be considered and difficult problems to be solved, but the matter has developed from the engineering side to a point where it is possible to consider the larger features and to set aside provisionally a sufficient sum of money to carry out the work contingent upon satisfactory arrangements being made with the owners of lands and vested rights and the complete solution of other matters now pending.

#### RECOMMENDATIONS

In view of the present condition of knowledge of the project I respectfully recommend that the sum of \$3,000,000 be set aside of the reclamation fund, for the construction of the Yuma project subject to the satisfactory adjustment of various matters pertaining to land and water titles and to structural features.

Very respectfully,

(Signed) CHAS. D. WALCOTT,  
*Director.*

OFFICE OF THE SECRETARY,  
*Washington, May 10, 1904.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: In a letter of the 9th instant to the Department you referred to the act of April 21, 1904—Public No. 125—which has authorized the Secretary of the Interior “to divert the waters of the Colorado River and to reclaim, utilize and dispose of any lands in said reservations,” etc., and have referred to the surveys which have already been carried on under the act of June 17, 1902—32 Stat. 388—and to the reports submitted by the engineers.

It appears that under the Yuma Project and by means of a dam across the Colorado River and other works, upwards of 85,000 acres of land can be reclaimed at a cost of less than \$40 per acre.

You have stated that much of this land, outside of the Indian Reservations, is in private ownership, and that the feasibility of the project will depend largely on the owners of the land uniting in a satisfactory form of organization under the terms and conditions of the reclamation law.

Your recommendation is that the sum of \$3,000,000 be set aside from the reclamation fund for the construction of the Yuma Project, subject to the satisfactory adjustment of the various matters pertaining to land and water titles and to structural features.

In compliance with your recommendation I hereby set aside the sum of \$3,000,000, or so much thereof as may be necessary, from the fund provided by the Act mentioned, for the construction of the Yuma Project, under the conditions you have set forth.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*

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CORRESPONDENCE AND  
EXTRACTS FROM ACTS OF CONGRESS  
TO WHICH REFERENCES ARE MADE  
ON PREVIOUS PAGES

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MARCH 7, 1903.

The Honorable, the SECRETARY OF THE INTERIOR,  
*Washington, D. C.*

SIR: Your attention is respectfully called to the desirability of pushing forward a few reclamation projects under the law of June 17, 1902, and concentrating efforts upon these while the general surveys and examinations authorized by you are being made in the thirteen States and three Territories.

In any considerable irrigation project there are so many intricate problems, such as water supply, storage facilities, comparison of alternative canal lines, selection of the particular lands which it is most feasible to irrigate, etc., that in most cases years of careful study are necessary to a determination of the wisest plans. Then still more time must be given to detailed surveys upon which estimates of cost and detailed plans for construction can be based. The Metropolitan Water Board of Boston spent more than ten years in such studies before deciding upon definite construction. A similar period was required for the preliminary studies, borings, etc., prior to the construction of the Croton dam for the City of New York.

Upon the passage of the reclamation law it was recognized that the public would expect construction to begin at an early day, and that the only way to meet this expectation was to vigorously push investigation on those projects about which sufficient was already known to indicate their feasibility and desirability. This has been done. The difficulty of quickly securing the necessary number of competent engineers has prevented as great progress upon other projects as was desired; but certain projects have been brought to the point where they can be clearly defined and their cost and results approximately estimated.

I therefore recommend for favorable consideration five projects which are nearest the point where contracts can be let, and upon which a decision should be reached, so that steps can be taken toward securing titles to the lands needed for the works, and minor necessities be provided, such as roads or means of access by which machinery can be brought in and contractors and others who desire to prepare bids can examine satisfactorily all of the conditions on the ground.

These projects are as follows:

Wyoming .....	Sweetwater project
Montana .....	Milk River project

Nevada .....	Truckee project
Colorado .....	Gunnison project
Arizona .....	Salt River project

### FUNDS AVAILABLE

In the First Annual Report of the Reclamation Service is quoted the official statement of the funds available for the year 1901, being \$3,144,821.91; also the estimated amount for 1902, being \$4,600,000; which makes, in round numbers, \$7,700,000; to which it is safe to add \$2,300,000 as the increment since June 30, 1902, making a total of \$10,000,000.

Section 9 of the reclamation law divides the fund into two portions, designated the major portion, which is to be expended eventually in the States or Territories in which it originated, subject to the existence therein of feasible irrigation projects; and the minor portion, which is to be expended in accordance with the judgment of the Secretary of the Interior. In short, there are now what may be termed a fixed fund (major portion) of, say, \$5,100,000, the distribution of which among the States and Territories named is not subject to discretion, and a floating fund of \$4,900,000, to be used by the Secretary of the Interior in any of the States and Territories named.

There are available, or will be before contracts can be let, ample funds for the construction of the five works listed above without drawing upon the fixed fund for any State. The public lands are being disposed of very rapidly and it is conservative to estimate that the fund for the current year will at least equal the average for the years 1901 and 1902. On this assumption the following table has been prepared, showing the five projects now in an advanced state of preparation that may be commenced within the present calendar year without any borrowing of funds from one State by another:

State	Total cost of project	Available from fixed funds	Required from floating funds
Wyoming (Sweetwater) ....	\$400,000	\$293,217	\$106,783
Montana (Milk River) .....	1,250,000	592,679	657,321
Nevada (Truckee) .....	1,250,000	18,195	1,231,805
Colorado (Gunnison) .....	1,500,000	481,407	1,018,593
Arizona (Salt River) .....	2,800,000	62,565	2,737,435
Total .....	7,720,000	1,448,063	5,751,937

Estimated amount of floating funds June 30, 1903, \$5,692,943.

All of these projects will require two or more years for construction, and it is thus seen that the money is available for pushing them forward as rapidly as engineering and economic considerations will permit.

### SWEETWATER PROJECT, WYOMING

This involves the construction of a reservoir in central Wyoming, on Sweetwater River, a tributary of North Platte River. The



reservoir is one of several ultimately to be built for the storage of floods and the development of lands in Wyoming and Nebraska.

The particular locality is one examined by Capt. Hiram N. Chittenden, Corps of Engineers, U. S. Army (See H. R. Doc. No. 141, 55th Congress, 2nd session.) The lands immediately adjacent to this reservoir site were withdrawn on August 15, 1892, pending survey. Diamond-drill holes have been sunk at the foundations, showing the character of the rock, and the locality has been surveyed in sufficient detail to enable the preparation of plans and estimates.

The land immediately below the reservoir site is at an altitude of about 6,000 feet, and a considerable portion of it is in private ownership. The portions now belonging to the Government include some areas of excellent land, but there are others rough and uneven or containing sand dunes and alkali flats. There has not been sufficient time to examine this land in detail by 40-acre tracts, but preliminary examination justifies the belief that several thousand acres can be reclaimed. It is known that farther down the river there are ample lands upon which the water can be utilized to advantage, and these have been withdrawn by segregation dated February 6, 1903.

The estimate of cost of the dam on Sweetwater River is placed at \$400,000. A portion of this cost is made up of land damages, the amount of which can only be estimated. There is no question, however, as to the suitability of this place for reservoir construction, and as the acquisition of the site and the construction of the dam will require two or three years, it is recommended that the construction be authorized, so that steps may immediately be taken to secure the necessary lands to be covered by the reservoir and to let contracts for beginning the work.

#### MILK RIVER PROJECT, MONTANA

This project contemplates the reclamation of land along Milk River, Montana, by flood waters of that stream and the increasing of the water supply in Milk River by the use of St. Mary Lakes, which now empty into St. Mary River and flow northerly into Canada. By building a low earth dam three-fourths of a mile below the present outlet of the lakes, to a maximum elevation of 50 feet above the bottom of the river, there will be formed a reservoir with a capacity of 250,000 acre-feet. By means of a canal 27.4 miles in length water can be taken from this reservoir to the North Fork of Milk River. The cost of the dam is estimated at \$250,000. The cost of the completed work, including dam and everything necessary to delivery of water to the North Fork of Milk River, is estimated at \$950,000. This canal will discharge 1,200 second-feet into Milk River.

The water, in flowing down Milk River, will pass to the north side of the international boundary and return to the United States, flowing southeasterly to a point near Havre, where it is proposed to construct a canal on the north side of Milk River, at a cost of \$350,000, which will irrigate 100,000 acres of land. The

excess water and seepage will continue 65 miles farther, to be diverted by a canal on the south side of Milk River and used upon lands between Malta and Glasgow, the remainder of the water being stored in a depression known as Bowdoin Lake. The estimated cost of a canal to Bowdoin Lake is about \$200,000; of closing the outlet to the lake, \$150,000, and of the main diversion canal around and beyond the lake, \$300,000.

The total cost of this system of water storage in St. Mary Lake, of supplemental storage in Bowdoin Lake, and of canals near Yantic and Malta, has been placed at \$2,000,000, and it has been estimated that 250,000 acres of land can be reclaimed.

Surveys for the dam and diversion canal from St. Mary River to the North Fork of Milk River have been finished, and preliminary surveys have been begun on the lower canals and Bowdoin Lake. These have been carried sufficiently far to demonstrate the feasibility of the project, but not far enough to furnish complete details of location and size.

The project is in a condition to admit of discussion of the general features, but specifications for the lower storage and diversion system can not be prepared until the end of the field season of 1903.

As an objection to this project it is urged that the water must flow down Milk River through a portion of Canada, and that the Canadians might divert the water before it could reach the United States. It is not believed that this would be done. In any event, the United States has absolute control of the water at St. Mary Lake, and if the Canadians should attempt to divert it, it could be kept within United States territory. This would involve the construction of a canal from the North Fork of Milk River across the South Fork to Cutbank Creek, at a cost of \$900,000, making the total cost from St. Mary River to Cutbank Creek \$1,850,000. Here the water will flow down Marias River, increasing the discharge of that stream. It can then be rediverted at a point near the mouth of Cottonwood Creek, carried out on the north side of Marias River, and dropped into Big Sandy Creek, which flows into Milk River above the proposed canal near Havre. By utilizing this route an additional supply of water can be had from Marias River, and the total cost of this line can be distributed over an area larger than would be reclaimed without the use of this latter canal.

It is recommended that at present \$1,250,000 be set aside for use in constructing the following portions of the St. Mary project:

Canal St. Mary Lake to N. Fork Milk River.....	\$700,000
Canal Milk River to Bowdoin reservoir.....	200,000
Bowdoin reservoir embankments.....	150,000
Irrigation canal from reservoir.....	200,000
Total .....	1,250,000

This construction will irrigate about 100,000 acres of land, and it constitutes an integral project, as provided by section 4 of the reclamation law. The remaining structures can be provided for at

a later date. The above figures include the estimated actual value of right of way.

### TRUCKEE PROJECT, NEVADA

This project for the reclamation of lands in western Nevada involves the construction of reservoirs lying in whole or in part in the State of California; also the diversion of the waters in the lower courses of Truckee and Carson rivers upon the broad area of desert lands adjacent to the lakes or sinks of the Carson and Humboldt.

The key of the situation is in Lake Tahoe, one of the largest mountain lakes in the United States. Here water can be stored at trifling cost provided the vested rights for logging, water power, etc., can be acquired at reasonable prices. While the storage in Lake Tahoe is inexpensive, the bringing of the water through Truckee River and a highline canal to the irrigable lands involves large expenditures. A number of alternative projects have been examined, most of which are feasible, but costly. It has been concluded that at present it is not desirable to attempt the irrigation of lands by means of a high-line canal from Truckee River, but that it will be more economical to divert water by canals near the lower end of this river.

Surveys and examinations have progressed sufficiently far to demonstrate the practicability of storing water in Lake Tahoe, allowing it to flow down Truckee River and to be diverted at a point near Wadsworth by a canal continuing easterly to the lower end of Carson River. Here a large reservoir can be constructed to hold the surplus or flood waters of Carson River and also those received from Truckee River. From this reservoir canal lines can be built to reach irrigable lands around or near Carson Lake and Sink and can be continued northerly, if desired, into the valley of the Humboldt.

The main or trunk system thus outlined is to be elaborated in the future by the construction of similar storage works in the mountains, on the headwaters of Truckee and Carson rivers. These will be relatively more expensive, but will be needed in the complete development of the water resources. There is a practically unlimited extent of desert land which might be reclaimed, and it will be necessary to utilize not merely the principal reservoirs, but also all of the supplemental means of storing waters.

The estimated cost of constructing the irrigating works at Lake Tahoe is \$50,000. By means of these, as has been said, water can be turned down Truckee River, from which it will be diverted by a dam near Wadsworth, turning the water into a canal 38 miles in length; the total cost of this work, including dam, will be \$750,000.

The flood waters of Carson River and those of Truckee River diverted by this canal will be caught by a cement dam, the estimated cost of which is \$450,000, providing 250,000 acre-feet of storage. The extent of good land to be irrigated by this work is estimated at 140,000 acres. This will be increased by supplemen-

tal storage works and other canals, most of which are still under survey, but which will cost, it is estimated, about \$1,500,000; these will provide water for an additional area of 100,000 acres.

It is recommended that the general project as outlined be approved and that the examination of the irrigable lands, reservoirs, etc., be continued, and that steps be taken to procure title to the lands needed by the various reservoirs.

### GUNNISON PROJECT, COLORADO

This project involves the construction of a tunnel from Gunnison River, a stream of large flow, to lands in the vicinity of Montrose, Colorado, these lands being partly in public and partly in private ownership.

Gunnison River flows through an extremely narrow, deep canyon, which had never been traversed by man, so far as can be ascertained, until examined by Mr. A. L. Fellows, engineer of the United States Geological Survey. He discovered that it is practicable to divert the river in the canyon, carrying it by a tunnel in solid rock, extending along the river about 2 miles, then turning at a slight angle toward the south and extending through the elevated plateau a distance of about 4 miles. Here the water can be delivered into the open valley above the town of Montrose, and will command a large extent of vacant land on both sides of Uncompahgre River.

The surveys and examinations have progressed to a point where the work is seen to be feasible if the people owning lands in the valley will take steps to secure possession of the principal canals needed as distributaries and will guarantee to the Government the performance of certain obligations. The total area under the proposed distributing system supplied by the tunnel is 171,000 acres. Of this about 150,000 acres can be effectively watered through this system. Of this latter amount a little over one-fourth, or 43,000 acres, is public land. The remainder, or 111,000 acres, is in the hands of individuals. In addition to the 150,000 acres, 6,000 acres can be watered from Uncompahgre River, and 11,000 acres are inaccessible or non-irrigable, being on river bottoms or steep slopes, making the total of 171,000 acres above noted.

The total cost of the tunnel with a capacity of 1,200 second-feet, is estimated at \$1,300,000, or a cost per acre on 150,000 acres of a little over \$9.

In addition to the tunnel furnishing water from Gunnison River it will be necessary for the people concerned to provide a canal system, the total cost of which is estimated at \$1,700,000, making a total cost to them of \$3,000,000, or approximately \$20 per acre supplied with water. The value of the lands is such that this amount can readily be paid in annual installments of \$2 per acre.

At the present time it is recommended that the project as outlined be approved conditional upon the people concerned forming an organization such as that contemplated in section 6 of the reclamation law. If these people will secure options upon the

existing canals which are needed as part of the distributing system, and will be willing to give security on their land for carrying out the obligations to the Government, it will be practicable to construct the tunnel and to take up the work leading to the reclamation of the lands both in private and in public ownership. Pending such action the surveys and estimates of the tunnel route can be brought more nearly to completion.

### SALT RIVER PROJECT, ARIZONA

This project involves the storage of water in Salt River near the mouth of Tonto Creek. From here the waters will be discharged back into Salt River, flowing down the stream to the vicinity of Phoenix, Ariz., where they will be used in the irrigation of vacant lands mostly in private ownership. A considerable extent of public land has been reserved and can be watered in case all of the supply is not needed for the irrigation of small farms now owned by individuals.

The engineering features in the construction and maintenance of the dam are more favorable than those of any other known project in Arizona, and from this standpoint the project is considered as superior to the San Carlos project, discovered and partly examined under the act of Congress authorizing examinations at the Buttes and other places.

In addition to the reservoir itself it is planned to develop waters by means of wells and pumps to be operated by electric power produced at the reservoir, this work being essentially a part of the irrigation works for the storage, diversion, and development of waters contemplated in the reclamation act.

The total cost of the reservoir and appurtenances, including the power plant, is estimated at \$2,800,000. This will provide water for 200,000 acres. Investigations have gone far enough to show that the project is feasible, and it is recommended that authority be given to acquire, if necessary, the lands needed for the reservoir and to let contracts for the construction of such roads as may be needed to secure access to the reservoir site, to enable the bringing in of machinery and the complete examination of all the conditions leading up to the preparation of detailed specifications for the foundations, superstructure, and appurtenances of the dam.

This project is one of the most important and urgent in the United States, as the population needing the water is on the ground and there is actual suffering and loss of property to the community for want of an adequate supply of water; and the conditions are such that early steps must be taken to perfect the organization contemplated in section 6 of the reclamation law relating to the maintenance and operation of the irrigation works by the owners of the land irrigated thereby. The conditions in Arizona are typical of those which must be made elsewhere, and in considering this project and determining upon rules and regulations, it is necessary to create such precedents as will be desirable for other parts of the United States.

The small landowners of the valley, those having tracts of from 40 acres and less up to 160 acres, have already taken steps to form a water-users' association, in order to be in a position to carry out the letter and spirit of the reclamation law and to deal as a community with the Secretary of the Interior, thus facilitating the work in case the project is authorized.

### RECOMMENDATIONS

It is respectfully recommended—

1. That efforts be concentrated upon the following five projects, as far as this can be done without detriment to the examination of other projects in hand, in order that specific contracts can be drawn and submitted for your approval:

Sweetwater project in Wyoming  
Milk River project in Montana  
Truckee project in Nevada  
Gunnison project in Colorado  
Salt River project in Arizona

2. That authority be granted in general terms for the taking of steps to secure necessary lands which are now in private ownership and which are needed for the dams, reservoirs, and other irrigation works, and that tentative arrangements be made, if practicable, with owners of such lands in order that the same may be submitted for the approval of the Department. If satisfactory arrangements can not be made with such private owners, it will be necessary to ask for condemnation.

3. That negotiations be taken up with owners of irrigable lands included in the projects mentioned, to determine the character of treatment to be accorded their lands, the details to be submitted for the approval of the Department from time to time.

4. That the projects as outlined be approved, with a view to continuing work thereon in greater detail for the ascertainment of the facts necessary for the preparation of specifications and for the letting of contracts for the construction of the irrigation works.

Very respectfully,

(Signed) CHARLES D. WALCOTT.

DEPARTMENT OF THE INTERIOR,

*March 14, 1903.*

The above and foregoing recommendations of the Director of the Geological Survey are hereby approved as made, and that officer is hereby authorized and empowered to proceed in accordance therewith and to take the necessary supplemental action to carry the same into effect.

(Signed) E. A. HITCHCOCK,  
*Secretary.*

DEPARTMENT OF THE INTERIOR,  
*Washington, March 14, 1903.*

The DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: I am in receipt of your communication of the 7th instant, relative to the following five projects under the Reclamation Act of June 17, 1902:

Wyoming .....	Sweetwater Project
Montana .....	Milk River Project
Nevada .....	Truckee Project
Colorado .....	Gunnison Project
Arizona .....	Salt River Project

in which you make the following recommendations:

First: That efforts be concentrated upon said five projects as far as this can be done without detriment to the examination of other projects in hand, in order that specific contracts can be drawn and submitted for my approval.

Second: That authority be granted in general terms for the taking of steps to secure necessary lands which are now in private ownership and which are needed for the dams, reservoirs and other irrigation works, and that tentative arrangements be made, if practicable, with owners of such lands in order that the same may be submitted for the approval of the Department. If satisfactory arrangements can not be made with such private owners it will be necessary to ask for condemnation.

Third: That negotiations be taken up with owners of irrigable lands included in the projects mentioned to determine the character of treatment to be accorded their lands, the details to be submitted for the approval of the Department from time to time.

Fourth: That the projects as outlined be approved with a view to continuing work thereon in greater detail for the ascertainment of the facts necessary for the preparation of specifications and for the letting of contracts for the construction of the irrigation works.

After consideration of said recommendations they are hereby approved as made, and you are hereby authorized and empowered to proceed in accordance therewith and to take the necessary supplemental action to carry the same into effect.

Said communication, with my approval endorsed thereon, is

herewith returned to your Bureau, a copy thereof being retained in this Department.

Very respectfully,

(Signed) E. A. HITCHCOCK,  
*Secretary.*



## BOULDER CANYON PROJECT ACT

[Extracts from] An act to provide for the construction of works for the protection and development of the Colorado River Basin, for the approval of the Colorado River compact, and for other purposes. (Act December 21, 1923, 45 Stat. 1057-1066, Public Law 642, 70th Cong., 2d sess.)

\* \* \* That for the purpose of controlling the floods, improving navigation and regulating the flow of the Colorado River, providing for storage and for the delivery of the stored waters thereof for reclamation of public lands and other beneficial uses exclusively within the United States, and for the generation of electrical energy as a means of making the project herein authorized a self-supporting and financially solvent undertaking, the Secretary of the Interior, subject to the terms of the Colorado River compact hereinafter mentioned, is hereby authorized to construct, operate, and maintain a dam and incidental works in the main stream of the Colorado River at Black Canyon or Boulder Canyon adequate to create a storage reservoir of a capacity of not less than twenty million acre-feet of water and a main canal and appurtenant structures located entirely within the United States connecting the Laguna Dam, or other suitable diversion dam, which the Secretary of the Interior is hereby authorized to construct if deemed necessary or advisable by him upon engineering or economic considerations, with the Imperial and Coachella Valleys in California, the expenditures for said main canal and appurtenant structures to be reimbursable, as provided in the reclamation law, and shall not be paid out of revenues derived from the sale or disposal of water power or electric energy at the dam authorized to be constructed at said Black Canyon or Boulder Canyon, or for water for potable purposes outside of the Imperial and Coachella Valleys: *Provided, however,* That no charge shall be made for water or for the use, storage, or delivery of water for irrigation or water for potable purposes in the Imperial or Coachella Valleys; also to construct and equip, operate, and maintain at or near said dam, or cause to be constructed, a complete plant and incidental structures suitable for the fullest economic development of electrical energy from the water discharged from said reservoir; and to acquire by proceedings in eminent domain, or otherwise, all lands, rights of way, and other property necessary for said purposes.

SEC. 2. (a) There is hereby established a special fund, to be known as the "Colorado River Dam fund" (hereinafter referred to as the "fund"), and to be available, as hereafter provided, only for carrying out the provisions of this Act. All revenues received in carrying out the provisions of this Act shall be paid into and

expenditures shall be made out of the fund, under the direction of the Secretary of the Interior.

(b) The Secretary of the Treasury is authorized to advance to the fund, from time to time and within the appropriations therefor, such amounts as the Secretary of the Interior deems necessary for carrying out the provisions of this Act, except that the aggregate amount of such advances shall not exceed the sum of \$165,000,000. Of this amount the sum of \$25,000,000 shall be allocated to flood control and shall be repaid to the United States out of 62½ per centum of revenues, if any, in excess of the amount necessary to meet periodical payments during the period of amortization, as provided in Section 4 of this Act. If said sum of \$25,000,000 is not repaid in full during the period of amortization, then 62½ per centum of all net revenues shall be applied to payment of the remainder. Interest at the rate of 4 per centum per annum accruing during the year upon the amounts so advanced and remaining unpaid shall be paid annually out of the fund, except as herein otherwise provided.

(c) Moneys in the fund advanced under subdivision (b) shall be available only for expenditures for construction and the payment of interest, during construction, upon the amounts so advanced. No expenditures out of the fund shall be made for operation and maintenance except from appropriations therefor.

SEC. 3. There is hereby authorized to be appropriated from time to time, out of any money in the Treasury not otherwise appropriated, such sums of money as may be necessary to carry out the purposes of this Act, not exceeding in the aggregate \$165,000,000.

SEC. 4. (a). This Act shall not take effect and no authority shall be exercised hereunder and no work shall be begun and no moneys expended on or in connection with the works or structures provided for in this Act, and no water rights shall be claimed or initiated hereunder, and no steps shall be taken by the United States or by others to initiate or perfect any claims to the use of water pertinent to such works or structures unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact, mentioned in section 13 hereof, and the President by public proclamation shall have so declared, or (2) if said States fail to ratify the said compact within six months from the date of the passage of this Act then, until six of said States, including the State of California, shall ratify said compact and shall consent to waive the provisions of the first paragraph of Article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions, save that of such six-State approval, and the President by public proclamation shall have so declared, and, further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this Act,

that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this Act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of Article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of Article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess of surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of Article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and (5) that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which can not reasonably be applied to domestic and agricultural uses, and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact, and (7) said agreement to take effect upon the ratification of the Colorado River compact by Arizona, California, and Nevada.

(b) \* \* \* Before any money is appropriated for the construction of said main canal and appurtenant structures to connect the Laguna Dam with the Imperial and Coachella Valleys in California, or any construction work is done upon said canal or contracted for, the Secretary of the Interior shall make provision for revenues, by contract or otherwise, adequate in his judgment to insure payment of all expenses of construction, operation, and maintenance of said main canal and appurtenant structures in the manner provided in the reclamation law. \* \* \*

SEC. 10. That nothing in this Act shall be construed as modifying in any manner the existing contract, dated October 23, 1918,

between the United States and the Imperial Irrigation District, providing for a connection with the Laguna Dam; but the Secretary of the Interior is authorized to enter into contract or contracts with the said district or other districts, persons, or agencies for the construction, in accordance with this Act, of said canal and appurtenant structures, and also for the operation and maintenance thereof, with the consent of the other users.

SEC. 11. That the Secretary of the Interior is hereby authorized to make such studies, surveys, investigations, and do such engineering as may be necessary to determine the lands in the State of Arizona that should be embraced within the boundaries of a reclamation project, heretofore commonly known and hereafter to be known as the Parker-Gila Valley reclamation project, and to recommend the most practicable and feasible method of irrigating lands within said project, or units thereof, and the cost of the same; and the appropriation of such sums of money as may be necessary for the aforesaid purposes from time to time is hereby authorized. The Secretary shall report to Congress as soon as practicable, and not later than December 10, 1931, his findings, conclusions, and recommendations regarding such project.

SEC. 13. (a) The Colorado River compact signed at Santa Fe, New Mexico, November 24, 1922, pursuant to Act of Congress approved August 19, 1921, entitled "An Act to permit a compact or agreement between the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming respecting the disposition and apportionment of the waters of the Colorado River, and for other purposes," is hereby approved by the Congress of the United States, and the provisions of the first paragraph of article II of the said Colorado River compact, making said compact binding and obligatory when it shall have been approved by the legislature of each of the signatory States, are hereby waived, and this approval shall become effective when the State of California and at least five of the other States mentioned, shall have approved or may hereafter approve said compact as aforesaid and shall consent to such waiver, as herein provided. \* \* \*

SEC. 14. This Act shall be deemed a supplement to the reclamation law, which said reclamation law shall govern the construction, operation, and management of the works herein authorized, except as otherwise herein provided.

SEC. 15. The Secretary of the Interior is authorized and directed to make investigation and public reports of the feasibility of projects for irrigation, generation of electric power, and other purposes in the States of Arizona, Nevada, Colorado, New Mexico, Utah, and Wyoming for the purpose of making such information available to said States and to the Congress, and of formulating a comprehensive scheme of control and the improvement and utilization of the water of the Colorado River and its tributaries. The sum of \$250,000 is hereby authorized to be appropriated from said Colorado River Dam fund, created by Section 2 of this Act, for such purposes.

SEC. 20. Nothing in this Act shall be construed as a denial or

recognition of any rights, if any, in Mexico to the use of the waters of the Colorado River system.

SEC. 21. That the short title of this Act shall be "Boulder Canyon Project Act."

NOTE.—The Boulder Canyon Adjustment Act of July 19, 1940, 54 Stat. 774, authorized the Secretary to promulgate and to put into effect charges for electrical energy generated at Boulder Dam, provided for the application of revenues from said project, authorized the operation of the Boulder Power Plant by the United States directly or through agents, and for other purposes.

## WATER CONSERVATION AND UTILITY PROJECTS

An act authorizing construction of water conservation and utilization projects in the Great Plains and arid and semiarid areas of the United States. (Act of August 11, 1939, 53 Stat. 1418-1419, Public Law 398, 76th Cong., 1st sess.)

\* \* \* That the Secretary of the Interior is hereby authorized to undertake the construction, including acquisition of water rights, rights-of-way, and other interests in land, of water conservation and utilization projects in the Great Plains and arid and semiarid areas of the United States.

SEC. 2. Any moneys expended on such construction from appropriations made under the authority of this Act shall be repaid to the United States by the water users in not to exceed forty annual installments. Any labor or materials supplied for such construction by the Work Projects Administration, the Civilian Conservation Corps, or any other Federal agency shall be utilized in such manner as the President may determine, and for such labor and materials the water users shall reimburse the United States in such amounts and on such terms as the President may fix for each project.

SEC. 3. No moneys may be expended on a project pursuant to the authority of this Act unless and until (1) the Secretary of the Interior has found, and has certified to the President, that the project has engineering feasibility and that the moneys to be expended on the project from appropriations made under the authority of this Act probably can be repaid by the water users within forty years; and (2) the President has approved said findings and has determined that labor and materials for the construction of the project should be made available to the Department of the Interior by the Work Projects Administration or a similar Federal agency, in the amount found by the Secretary of the Interior to make up the difference, if any, between the estimated cost of construction and the amount which can be expended from appropriations made under this Act and probably can be repaid by the water users: *Provided*, That the Secretary of the Interior may accept for the construction of the project such labor or materials as may be offered by any State or political subdivision thereof. State agency, or municipal corporation, and may reduce by the amount thereof the estimated cost of construction to be met by the expenditure of Federal moneys.

SEC. 4. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, such sums of money as may be necessary to carry out the provisions of this Act, including investigations and surveys of projects pro-

posed under the authority of this Act; and, from such sums appropriated or transferred, expenditures may be made for personal services in the District of Columbia and may be made for the same purposes and under the same conditions as included in the appropriation Acts for the departments, establishments, and other agencies to which sums may be made available by appropriation or transfer.

## AMENDING WATER CONSERVATION AND UTILIZATION ACT OF AUGUST 11, 1939

[Extracts from] An act to amend an Act entitled "An Act authorizing construction of water conservation and utilization projects in the Great Plains and arid and semiarid areas of the United States," approved August 11, 1939 (53 Stat. 1418), and an Act entitled "An Act to promote conservation in the arid and semiarid areas of the United States by aiding in the development of facilities for water storage and utilization, and for other purposes," approved August 28, 1937 (50 Stat. 869). (Act October 14, 1940, 54 Stat. 1119-1125, Public Law 848, 76th Cong., 3d sess.)

\* \* \* That the Act entitled "An Act authorizing construction of water conservation and utilization projects in the Great Plains and arid and semiarid areas of the United States," approved August 11, 1939 (53 Stat. 1418), is hereby amended to read as follows:

SECTION 1. For the purpose of stabilizing water supply and thereby rehabilitating farmers on the land and providing opportunities for permanent settlement of farm families, the Secretary of the Interior (hereinafter referred to as "the Secretary") is hereby authorized to investigate and, upon compliance with the provisions of this Act, to construct water conservation and utilization projects in the Great Plains and arid and semiarid areas of the United States, and to operate and maintain each such project in accordance with the provisions of this Act: *Provided*, That the United States shall retain title to the dams, reservoirs, irrigation, and other project works until Congress otherwise provides: *And provided further*, That expenditures from appropriations made directly pursuant to the authority contained in section 12 (1) to meet reimbursable construction costs allocated to irrigation as defined in section 4 (b) shall not exceed \$1,000,000 for dams and reservoirs in any one project.

SEC. 2. In connection with the investigation, construction, or operation and maintenance of a project, pursuant to the authority of this Act, the Secretary is authorized to utilize (1) in such manner as the President may direct, services, labor, materials, or other property, including money, supplied by the Work Projects Administration, the Civilian Conservation Corps, the Office of Indian Affairs, the Department of Agriculture, or any other Federal agency, for which the United States shall be reimbursed in such amounts as the President may fix for each project, within the limits of the water users' ability to repay costs as found by the Secretary under subsection 3 (a) (iv); and (2) such services, labor, materials, easements or property, including money, as may be contributed by any State or political subdivision thereof, State agency, municipal corporation, or other organization, or individuals, if, in the judgment of the Secretary, the acceptance thereof will not impair the title of the United States to the project works and will not reduce the probability that the project water users can meet the obligations to the United States entered into pursuant to this Act. Moneys received and accepted under (2) of this section shall be and remain available for expenditure for the purposes for which contributed in like manner as if said sums had been specifically appropriated for said purposes.

SEC. 3. (a) No construction of a project may be undertaken pursuant to the authority of this Act unless and until the Secretary has made an investi-



gation thereof and has submitted to the President his report and findings on—

- (i) the engineering feasibility of the proposed construction;
- (ii) the estimated cost of the proposed construction;
- (iii) the part of the estimated cost which properly can be allocated to irrigation;
- (iv) the part of the estimated cost which probably can be repaid by the water users in accordance with the requirements of section 4;
- (v) the part of the estimated cost which can properly be allocated to municipal or miscellaneous water supplies or power and probably be returned to the United States in revenues therefrom;
- (vi) the part of the estimated cost which can properly be allocated to the irrigation of Indian trust and tribal lands, and be repayable in accordance with existing law relating to Indian lands;
- (vii) the part of the estimated cost which can properly be allocated to flood control as recommended by the Chief of Engineers, War Department.

In connection with each such investigation, report, and finding, the Secretary shall consult with the Secretary of Agriculture regarding participation in the proposed project by the Department of Agriculture under the authority of sections 5 and 6; and the Secretary shall also transmit to the President a report by the Secretary of Agriculture to the President on the participation, if any, proposed by the Department of Agriculture. The project shall be deemed authorized and may be undertaken pursuant to this Act if (1) the Secretary finds and certifies to the President that the project has engineering feasibility and that the water users probably can repay, in accordance with the requirements of section 4, an amount equal to or in excess of that part of the estimated cost allocated by him to irrigation to be met by expenditure of moneys appropriated pursuant to section 12 (1); and (2) the President has approved said report and findings and has found that services, labor, materials, easements, and other property, including money, for the construction of the project, should be made available to the Department of the Interior by the Work Projects Administration or other Federal agencies, to the extent found necessary by the Secretary to make up the difference between the estimated cost of project construction and (i) the part thereof to be met by expenditure of moneys appropriated pursuant to section 12 (1), together with (ii) such services, materials, money, easements, and other property as non-Federal agencies or parties have agreed to contribute and the Secretary has found acceptable under section 2. \* \* \*

SEC. 4. (b) The term "reimbursable construction costs" as used in this Act means that part of the costs of investigating, constructing, and operating and maintaining the project, which are allocated by the Secretary to irrigation, and which are met by expenditures of moneys therefor appropriated under the authority of section 12 (1), plus such amounts as the President, under section 2 (1), may determine to be reimbursable: *Provided*, That administrative expenses incurred in the District of Columbia in connection with the investigation, construction, or operation and maintenance of a project shall not be included in the reimbursable construction costs nor shall they be charged to the water users in any way. \* \* \*

SEC. 5. (a) In connection with the construction or operation and maintenance of projects undertaken pursuant to the authority of this Act, and in order to further in the Great Plains and arid and semiarid areas of the United States an effective rehabilitation program, stabilization of the agricultural economy and maximum utilization of funds spent for relief purposes, the Secretary of Agriculture is hereby authorized, pursuant to cooperative agreement with the Secretary of the Interior, (1) to arrange for the settlement of the projects on a sound agricultural basis, and insofar as practicable, the location thereon of persons in need; (2) to extend guidance and advice to settlers thereon in matters of farm practice, soil conservation, and efficient land use; (3) to acquire agricultural lands within the boundaries of such projects, with titles and at prices satisfactory to him; and (4) to arrange for the improvement of lands within the project boundaries, including clearing, leveling, and preparing them for distribution of irrigation water. Contracts between the United States and water users or water users' organizations for the lease or purchase of, or the improvement of, lands within such projects shall provide for annual or semiannual payments to the United States, of the number and amounts fixed by the Secretary of Agricul-

ture. The lease, purchase, or improvement contracts for each tract of land shall provide in the aggregate for the return, in not to exceed fifty years from the date the land is first settled upon, of the costs incurred by the United States in acquiring and improving such tract of land with funds appropriated under authority of section 12 (2), except administrative expenses incurred in the District of Columbia, together with interest on unpaid balances of said costs at not less than 3 per centum per annum. Such lease, purchase, or improvement contracts shall also provide for the fulfillment of such obligations related to reimbursable construction costs and operation and maintenance charges as may be applicable to such lands in accordance with the repayment contract or contracts required by section 4.

(b) For the purposes of this section, the Secretary of Agriculture may utilize (1) in such manner as the President may direct, services, labor, materials, or other property, including money supplied by the Work Projects Administration, the Civilian Conservation Corps, the Office of Indian Affairs, the Department of Agriculture, or any other Federal agency to the extent that the President, upon the report and recommendations of the Secretary of Agriculture, finds that the same should be supplied in assistance of such improvement work, and for which the United States shall be reimbursed in such amounts as the President may fix for each project; and (2) such services, labor, materials, easements, or other property, including money, as may be contributed by any State or political subdivision thereof, State agency, municipal corporation, or other organization, or individuals. Moneys received and accepted under (2) of this subsection shall remain available for expenditure for the purposes for which contributed in like manner as if said sums had been specifically appropriated for said purposes.

SEC. 6. The Secretary, by cooperative agreements, may arrange with the Department of Agriculture or with such other Federal or State agencies, as the President may deem desirable, for cooperation in the investigations and surveys of projects proposed under the authority of this Act; and in connection with any such project which is undertaken the Secretary by such cooperative agreements may arrange for such cooperation in the construction or operation and maintenance of the project as he deems desirable. Any such cooperative agreement with the Department of Agriculture may provide, among other things (1) that the Secretary of Agriculture shall enter into the repayment contracts, required by section 4, and shall handle the collections of repayments and shall take over the other administrative duties connected with the project, after the Secretary of the Interior announces that the project is ready for operation; (2) if such agreement be entered into after construction of the project has been undertaken by the Secretary of the Interior and after he has entered into the repayment contracts required by section 4, that the Secretary of Agriculture shall take over the collection of repayments and other administrative duties connected with the project; (3) that no water shall be delivered to or for any land or party while the owner of said land or said party is in arrears for more than twelve months in the payment to the United States of money due and payable under a land contract entered into pursuant to section 5 (a); and (4) that any repayment contract with a water user or water users' organization entered into pursuant to section 4 and any land contract with the same water user or organization entered into pursuant to section 5 (a), if said contracts involve the same land, may be combined in a single instrument. The Secretary of Agriculture is hereby authorized to carry out the provision of any such cooperative agreements.

SEC. 7. On any one project undertaken pursuant to the Act of August 28, 1937, entitled "An act to promote conservation in the arid and semiarid areas of the United States by aiding in the development of facilities for water storage and utilization, and for other purposes" (50 Stat. 869), as amended and supplemented, expenditures for the construction, maintenance, operation, rehabilitation or financial assistance of any one project, shall not exceed \$50,000 of Federal funds, whether appropriated or allotted or both. All project facilities and appurtenances which depend for their utility in whole or in part upon each other or upon any common facility shall be deemed one project within the meaning of this section.

SEC. 10. (a) In connection with any project constructed pursuant to the provisions of this Act, the Secretary shall have the same authority, with regard to the utilization of lands owned by the United States, other than lands acquired under section 5 as he has in connection with projects undertaken pursuant to the Federal reclamation laws, Act of June 17, 1902 (32 Stat. 388), and Acts amendatory thereof or supplementary thereto. \* \* \*

SEC. 11. The Secretary of the Interior and the Secretary of Agriculture are hereby authorized to perform any and all Acts and to make such rules and regulations as may be necessary and proper for the purpose of carrying out their respective functions under this Act and for the purpose of carrying the provisions of this Act into full force and effect.

SEC. 12. To carry out the purposes of this Act there is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated (1) for the Department of the Interior such sums as may be necessary to carry out its functions under this Act, and (2) for the Department of Agriculture such sums as may be necessary to carry out its functions under this Act.

## AMENDING WATER CONSERVATION AND UTILIZATION ACT OF AUGUST 11, 1939, AND OCTOBER 14, 1940

An act to amend the Act of August 11, 1939 (53 Stat. 1418), as amended by the Act of October 14, 1940 (54 Stat. 1119), relating to water conservation and utilization projects. (Act July 16, 1943, 57 Stat. 566-568, Public Law 152, 78th Cong., 1st sess.)

\* \* \* That the last proviso of section 1 of the Act of August 11, 1939 (53 Stat. 1418), as amended (hereinafter referred to as the Act), is hereby amended to read as follows: "*And provided further*, That expenditures from appropriations made directly pursuant to the authority contained in section 12 (1) to meet reimbursable construction costs allocated to irrigation as defined in section 4 (b) shall not exceed \$2,000,000 for dams and reservoirs in any one project, and that expenditures from appropriations made directly pursuant to the authority contained in section 12 (1) to meet costs allocated to flood control by the Secretary after consultation with the Chief of Engineers, War Department, shall not exceed \$500,000 on any one project."

SEC. 2. Subparagraph (vii) of subsection 3 (a) of the Act is hereby amended to read as follows:

(vii) The part of the estimated cost which can properly be allocated to flood control as recommended by the Secretary after consultation with the Chief of Engineers, War Department.

SEC. 3. Subsection 3 (b) of the Act is hereby amended to read as follows:

(b) No actual construction of the physical features of a project shall be undertaken unless and until (1) the Secretary has found that lands, or interests in lands, deemed necessary for the construction and operation of the major features of the projects have been secured, or sufficient progress made in their procurement to indicate the probability that all these lands or interests in lands can be secured, with titles and at prices satisfactory to him; and (2) the Secretary has found (i) that water rights adequate for the purposes of the project have been acquired with titles and at prices satisfactory to him, or that such water rights have been initiated and in his judgment can be perfected in conformity with State law and any applicable interstate agreements and in a manner satisfactory to him; and (ii) that such water rights can be utilized for the purposes of the project in conformity with State law and any applicable interstate agreements and in a manner satisfactory to him.

SEC. 4. Section 3 of the Act is hereby amended by the addition of the following subsection:

(c) Any part of a project hereunder may be designated as a division of

the project by the Secretary if he, after consultation with the Secretary of Agriculture, deems this desirable for orderly and efficient construction or administration. The term "project," as used in subsection 3 (b) and section 4, shall be deemed to mean also "division of a project," designated as provided in this subsection. Any project authorized for construction from appropriations under the head "Water Conservation and Utility Projects" in the Interior Department Appropriation Act, 1940 (53 Stat. 685), hereinafter called the 1940 water conservation appropriation, may be designated by the Secretary, upon agreement with the Secretary of Agriculture, a project under this Act and shall thereupon be subject to all the provisions and requirements thereof, except those of subsections 3 (a) and 3 (b).

**SEC. 5.** Section 4 of the Act is hereby amended by the addition of the following subsection:

(d) For each project, on which construction is commenced or continued under this subsection, appropriations heretofore or hereafter made pursuant to section 12 and the unexpended balance of the 1940 water conservation appropriation, in addition to being available for other authorized objects of expenditure, shall be available for expenditure, by the agency to which available, in lieu of the "services, labor, materials, or other property, including money," authorized to be utilized under section 2 and subsection 5 (b). All expenditures on each such project may be excluded (1) from the project construction costs to the extent the Secretary finds necessary to keep the reimbursable costs within the findings made under subsections 3 (a) (iv), 3 (a) (v), and 3 (a) (vi), and (2) from the costs that but for this subsection would be required to be returned under section 5, to the extent deemed necessary by the Secretary of Agriculture for the successful prosecution of the project; and as to each such project the limitations on expenditures provided in sections 1 and 9 shall be inoperative. Appropriations made pursuant to section 12 shall be available for expenditures for continuation of construction on any project heretofore undertaken under the 1940 water conservation appropriation, and such expenditures and those from the 1940 water conservation appropriation may be excluded from the costs of any such project in determining the amounts required to be reimbursed, to the extent the Secretary and the Secretary of Agriculture jointly determine is necessary to keep reimbursable costs within the ability of the water users to repay. No project may be initiated for construction or, if heretofore authorized, continued under this subsection unless the Secretary, following consultation with the Secretary of Agriculture, finds that the proposed construction under this subsection is justifiable as an aid in the production of needed agricultural products and the President approves said finding. The utilization of services or labor of prisoners of war under section 2 is authorized, subject to the approval of, and regulations by, the War Department or other Federal agency having control of said prisoners. From and after the date six months after the cessation of hostilities in the present war as determined by proclamation of the President or concurrent resolution of the Congress, this subsection shall no longer be of any force or effect except as to projects on which construction has been initiated or continued under this subsection prior to said date.

**SEC. 6.** Section 5 of the Act is hereby amended by the addition of the following subsection:

(c) Where the aggregate amount involved does not exceed \$300, the provisions of section 3709 of the Revised Statutes (41 U. S. C. 5) shall not apply to any purchase or service authorized for the Department of Agriculture under this Act or under the 1940 water conservation appropriation.

## FLOOD CONTROL ACT OF 1944

[Extracts from] An act authorizing the construction of certain public works on rivers and harbors for flood control, and for other purposes. (Act December 22, 1944, 58 Stat. 887-891, Public Law 534, 78th Cong., 2d sess.)

\* \* \* In connection with the exercise of jurisdiction over the rivers of the Nation through the construction of works of improvement, for navigation or flood control, as herein authorized, it is hereby declared to be the policy of the Congress to recognize the interests and rights of the States in determining the development of the watersheds within their borders and likewise their interests and rights in water utilization and control, as herein authorized to preserve and protect to the fullest possible extent established and potential uses, for all purposes, of the waters of the Nation's rivers; to facilitate the consideration of projects on a basis of comprehensive and coordinated development; and to limit the authorization and construction of navigation works to those in which a substantial benefit to navigation will be realized therefrom and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.

In conformity with this policy:

(a) Plans, proposals, or reports of the Chief of Engineers, War Department, for any works of improvement for navigation or flood control not heretofore or herein authorized, shall be submitted to the Congress only upon compliance with the provisions of this paragraph (a). Investigations which form the basis of any such plans, proposals, or reports shall be conducted in such a manner as to give to the affected State or States, during the course of the investigations, information developed by the investigations and also opportunity for consultation regarding plans and proposals, and, to the extent deemed practicable by the Chief of Engineers, opportunity to cooperate in the investigations. If such investigations in whole or part are concerned with the use or control of waters arising west of the ninety-seventh meridian, the Chief of Engineers shall give to the Secretary of the Interior, during the course of the investigations, information developed by the investigations and also opportunity for consultation regarding plans and proposals, and to the extent deemed practicable by the Chief of Engineers, opportunity to cooperate in the investigations. The relations of the Chief of Engineers with any State under this paragraph (a) shall be with the Governor of the State or such official or agency of the State as the Governor may designate. The term "affected State or States" shall include those in which the works or any part thereof are proposed to be located;

those which in whole or part are both within the drainage basin involved and situated in a State lying wholly or in part west of the ninety-eighth meridian; and such of those which are east of the ninety-eighth meridian as, in the judgment of the Chief of Engineers, will be substantially affected. Such plans, proposals, or reports and related investigations shall be made to the end, among other things, of facilitating the coordination of plans for the construction and operation of the proposed works with other plans involving the waters which would be used or controlled by such proposed works. Each report submitting any such plans or proposals to the Congress shall set out therein, among other things, the relationship between the plans for construction and operation of the proposed works and the plans, if any, submitted by the affected States and by the Secretary of the Interior. The Chief of Engineers shall transmit a copy of his proposed report to each affected State, and, in case the plans or proposals covered by the report are concerned with the use or control of waters which rise in whole or in part west of the ninety-seventh meridian, to the Secretary of the Interior. Within ninety days from the date of receipt of said proposed report, the written views and recommendations of each affected State and of the Secretary of the Interior may be submitted to the Chief of Engineers. The Secretary of War shall transmit to the Congress, with such comments and recommendations as he deems appropriate, the proposed report together with the submitted views and recommendations of affected States and of the Secretary of the Interior. The Secretary of War may prepare and make said transmittal any time following said ninety-day period. The letter of transmittal and its attachments shall be printed as a House or Senate document.

(b) The use for navigation, in connection with the operation and maintenance of such works herein authorized for construction, of waters arising in States lying wholly or partly west of the ninety-eighth meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the ninety-eighth meridian, of such waters for domestic, municipal, stock water, irrigation, mining, or industrial purposes.

(c) The Secretary of the Interior, in making investigations and reports on works for irrigation and purposes incidental thereto shall, in relation to an affected State or States (as defined in paragraph (a) of this section), and to the Secretary of War, be subject to the same provisions regarding investigations, plans, proposals, and reports as prescribed in paragraph (a) of this section for the Chief of Engineers and the Secretary of War. In the event a submission of views and recommendations, made by an affected State or by the Secretary of War pursuant to said provisions, sets forth objections to the plans or proposals covered by the report of the Secretary of the Interior, the proposed works shall not be deemed authorized except upon approval by an Act of Congress; and subsection 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187) and subsection 3 (a) of the Act of August 11, 1939 (53 Stat. 1418), as amended, are hereby amended accordingly.

SEC. 2. That the words "flood control" as used in section 1 of the Act of June 22, 1936, shall be construed to include channel and major drainage improvements, and that hereafter Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and water-flow retardation and soil-erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress.

SEC. 3. That section 3 of the Act approved June 22, 1936 (Public, Numbered 738, Seventy-fourth Congress), as amended by section 2 of the Act approved June 28, 1938 (Public, Numbered 761, Seventy-fifth Congress), shall apply to all works authorized in this Act, except that for any channel improvement or channel rectification project provisions (a), (b), and (c) of section 3 of said Act of June 22, 1936, shall apply thereto, and except as otherwise provided by law: *Provided*, That the authorization for any flood-control project herein adopted requiring local cooperation shall expire five years from the date on which local interests are notified in writing by the War Department of the requirements of local cooperation, unless said interests shall within said time furnish assurances satisfactory to the Secretary of War that the required cooperation will be furnished.

\* \* \* \* \*

SEC. 5. Electric power and energy generated at reservoir projects under the control of the War Department and in the opinion of the Secretary of War not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission. Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary of the Interior is authorized, from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal



Government, public bodies, cooperatives, and privately owned companies. All moneys received from such sale shall be deposited in the Treasury of the United States as miscellaneous receipts.

\* \* \* \* \*

SEC. 8. Hereafter, whenever the Secretary of War determines, upon recommendation by the Secretary of the Interior that any dam and reservoir project operated under the direction of the Secretary of War may be utilized for irrigation purposes, the Secretary of the Interior is authorized to construct, operate, and maintain, under the provisions of the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), such additional works in connection therewith as he may deem necessary for irrigation purposes. Such irrigation works may be undertaken only after a report and findings thereon have been made by the Secretary of the Interior as provided in said Federal reclamation laws and after subsequent specific authorization of the Congress by an authorization Act: and, within the limits of the water users' repayment ability such report may be predicated on the allocation to irrigation of an appropriate portion of the cost of structures and facilities used for irrigation and other purposes. Dams and reservoirs operated under the direction of the Secretary of War may be utilized hereafter for irrigation purposes only in conformity with the provisions of this section, but the foregoing requirement shall not prejudice lawful uses now existing: *Provided*, That this section shall not apply to any dam or reservoir heretofore constructed in whole or in part by the Army Engineers, which provides conservation storage of water for irrigation purposes.

SEC. 9. (a) The general comprehensive plans set forth in House Document 475 and Senate Document 191, Seventy-eighth Congress, second session, as revised and coordinated by Senate Document 247, Seventy-eighth Congress, second session, are hereby approved and the initial stages recommended are hereby authorized and shall be prosecuted by the War Department and the Department of the Interior as speedily as may be consistent with budgetary requirements.

(b) The general comprehensive plan for flood control and other purposes in the Missouri River Basin approved by the Act of June 28, 1938, as modified by subsequent Acts, is hereby expanded to include the works referred to in paragraph (a) to be undertaken by the War Department; and said expended plan shall be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers.

(c) Subject to the basin-wide findings and recommendations regarding the benefits, the allocations of costs and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), ex-

cept that irrigation of Indian trust and tribal lands, and repayment therefor, shall be in accordance with the laws relating to Indian lands.

(d) In addition to previous authorizations there is hereby authorized to be appropriated the sum of \$200,000,000 for the partial accomplishment of the works to be undertaken under said expanded plans by the Corps of Engineers.

(e) The sum of \$200,000,000 is hereby authorized to be appropriated for the partial accomplishment of the works to be undertaken under said plans by the Secretary of the Interior.

## FLOOD CONTROL ACT OF 1946

[Extracts from] An act authorizing the construction of certain public works on rivers and harbors for flood control, and for other purposes. (Act July 24, 1946, 60 Stat. 641-653, Public Law 526, 79th Cong., 2d sess.)

\* \* \* That this Act may be cited as the "Flood Control Act of 1946."

\* \* \* \* \*

The provisions of section 1 of the Act of December 22, 1944 (Public, Numbered 534, Seventy-eighth Congress, second session), shall govern with respect to projects herein authorized; and the procedures therein set forth with respect to plans, proposals, or reports for works of improvement for navigation or flood control and for irrigation and purposes incidental thereto shall apply as if herein set forth in full.

It is hereby declared to be the policy of the Congress that the following provisions shall be observed:

No project or any modification not authorized, of a project for flood control or rivers and harbors shall be authorized by the Congress unless a report for such project or modification has been previously submitted by the Chief of Engineers, United States Army, in conformity with existing law.

\* \* \* \* \*

SEC. 4. That section 4 of the Act approved December 22, 1944 (Public, Numbered 534, Seventy-eighth Congress), is amended to read as follows:

The Chief of Engineers, under the supervision of the Secretary of War, is authorized to construct, maintain, and operate public park and recreational facilities in reservoir areas under the control of the War Department, and to permit the construction, maintenance, and operation of such facilities. The Secretary of War is authorized to grant leases of lands, including structures or facilities thereon, in reservoir areas for such periods and upon such terms as he may deem reasonable: *Provided*, That leases to nonprofit organizations may be granted at reduced or nominal rentals in recognition of the public service to be rendered in utilizing the leased premises: *Provided further*, That preference shall be given to Federal, State, or local governmental agencies, and licenses may be granted without monetary considerations, to such agencies for the use of all or any portion of a reservoir area, when the Secretary of War determines such action to be in the public interest, and for such periods of time and upon such conditions as he may find advisable. The water areas of all such reservoirs shall be open to public use generally, without charge, for boating, swimming, bathing, fishing, and other recreational purposes, and ready access to and exit from such water areas along the shores of such reservoirs shall be maintained for general public use, when such use is determined by the Secretary of War not to be contrary to the public interest, all under such rules and regulations as the Secretary of War

may deem necessary. No use of any area to which this section applies shall be permitted which is inconsistent with the laws for the protection of fish and game of the State in which such area is situated. All moneys received for leases or privileges shall be deposited in the Treasury of the United States as miscellaneous receipts.

\* \* \* \* \*

SEC. 10. That the following works of improvement for the benefit of navigation and the control of destructive flood-waters and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of War and the supervision of the Chief of Engineers in accordance with the plans in the respective reports hereinafter designated and subject to the conditions set forth therein: *Provided*, That the necessary plans, specifications, and preliminary work may be prosecuted on any project authorized in this Act with funds from appropriations heretofore or hereafter made for flood control so as to be ready for rapid inauguration of a construction program: *Provided further*, That the projects authorized herein shall be initiated as expeditiously and prosecuted as vigorously as may be consistent with budgetary requirements: *And provided further*, That penstocks and other similar facilities adapted to possible future use in the development of hydroelectric power shall be installed in any dam authorized in this Act for construction by the War Department when approved by the Secretary of War on the recommendation of the Chief of Engineers and the Federal Power Commission:

\* \* \* \* \*

#### MISSOURI RIVER BASIN

In addition to previous authorizations, there is hereby authorized to be appropriated the sum of \$150,000,000 for the prosecution of the comprehensive plan approved by the Act of June 28, 1938, as expanded by section 9a of the Act approved December 22, 1944 (Public, Numbered 534, Seventy-eighth Congress), for continuing the works in the Missouri River Basin to be undertaken under said expanded plans by the Corps of Engineers.

The project for flood protection at Mandan, North Dakota, on Heart River, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in House Document Numbered 294, Seventy-ninth Congress, first session, at an estimated cost of \$246,000.

\* \* \* \* \*

SEC. 18. In addition to previous authorizations, there is hereby authorized to be appropriated the sum of \$150,000,000 for the prosecution of the comprehensive plan adopted by section 9a of the Act approved December 22, 1944 (Public, Numbered 534, Seventy-eighth Congress), for continuing the works in the Missouri River Basin to be undertaken under said plans by the Secretary of the Interior.

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